

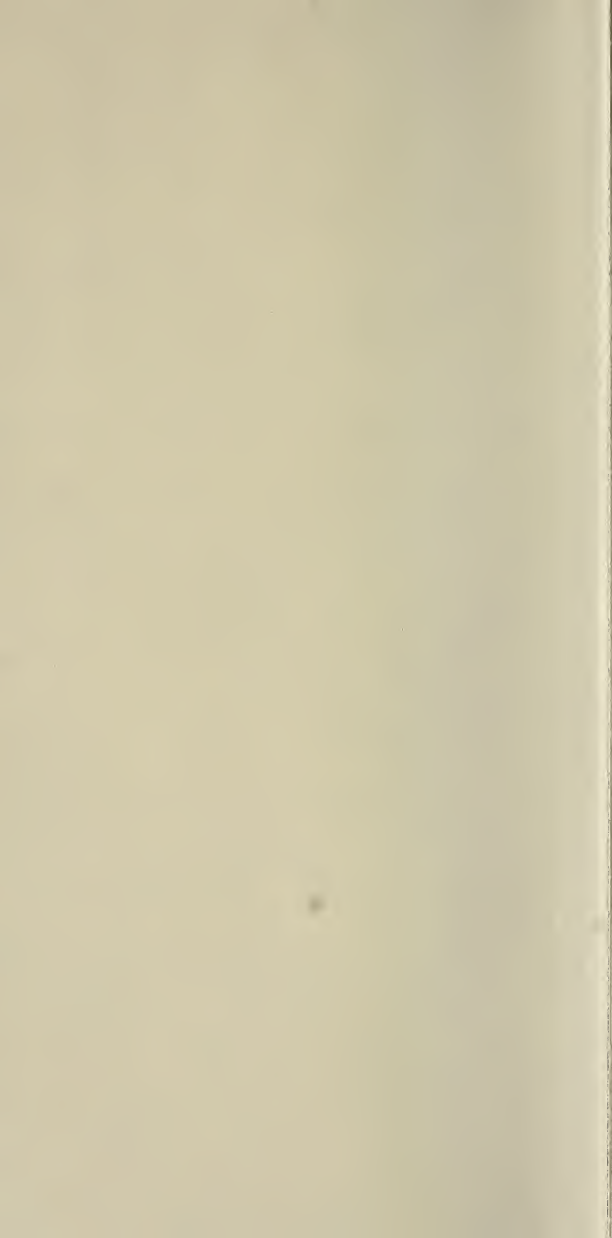
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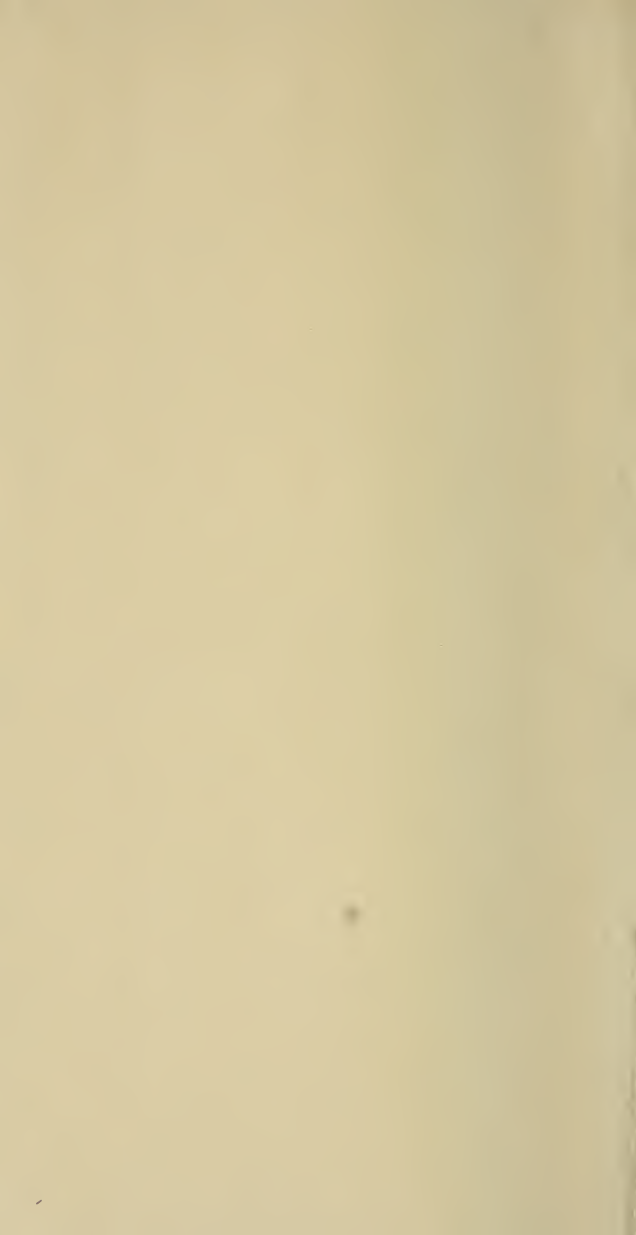


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N. CARITAT de CONDORCET.

Born. 1743. Died 1794.

OUTLINES

OF AN

HISTORICAL VIEW

OF THE

PROGRESS OF THE HUMAN MIND.



OUTLINES

OF AN

HISTORICAL VIEW

OF THE

PROGRESS OF THE HUMAN MIND:

BEING A POSTHUMOUS WORK OF THE LATE

Jean Antoine Nicolas Cantal, marquis
M. DE CONDORCET.

.....
TRANSLATED FROM THE FRENCH:
.....

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P R E F A C E.

CONDORCET, proscribed by a sanguinary faction, formed the idea of addressing to his fellow-citizens a summary of his principles, and of his conduct in public affairs. He set down a few lines in execution of this project: but when he recollected, as he was obliged to do, thirty years of labor directed to the public service, and the multitude of fugitive pieces in which, since the revolution, he had uniformly attacked every institution inimical to liberty, he rejected the idea of a useless justification. Free as he was from the dominion of the passions, he could not consent to stain the purity of his mind by recollecting his persecutors; perpetually and sublimely inattentive to himself, he determined to consecrate the short space that remained between him and death to a work of general and permanent utility. That work is the performance now given to the world. It has relation to a number of others, in which the rights of men had previously been discussed and established; in which superstition had received its last and fatal blow; in which the methods of the mathematical sciences, applied to new objects, have opened new avenues to the moral and political sciences; in which the genuine principles of social happiness have received a development, and a kind of demonstration, unknown before; lastly, in which we every where perceive marks of that profound morality, which banishes even the very frailties of self-love,....of those pure

and incorruptible virtues within the influence of which it is impossible to live without feeling a religious veneration.

MAY this deplorable instance of the most extraordinary talents lost to his country....to the cause of liberty....to the progress of science, and its beneficial application to the wants of civilized man, excite a bitterness of regret that shall prove advantageous to the public welfare !....May this death, which will in no small degree contribute, in the pages of history, to characterise the era in which it has taken place, inspire a firm and dauntless attachment to the rights of which it was a violation ! Such is the only homage worthy the sage, who, the fatal sword suspended over his head, could meditate in peace the melioration and happiness of his fellow creatures ; such the only consolation those can experience who have been the objects of his affection, and have known all the extent of his virtue.

OUTLINES
OF AN
HISTORICAL VIEW, &c.

INTRODUCTION.

MAN is born with the faculty of receiving sensations. In those which he receives, he is capable of perceiving and of distinguishing the simple sensations of which they are composed. He can retain, recognise, combine them. He can preserve or recal them to his memory; he can compare their different combinations; he can ascertain what they possess in common, and what characterises each: lastly, he can affix signs to all these objects, the better to know them, and the more easily to form from them new combinations.

THIS faculty is developed in him by the action of external objects, that is, by the presence of certain complex sensations, the constancy of which, whether in their identical whole, or in the laws of their change, is independent of himself. It is also exercised by communication with other similarly organised individuals, and by all the artificial means which, from the first developement of this faculty, men have succeeded in inventing.

SENSATIONS are accompanied with pleasure or pain, and man has the further faculty of converting these momentary impressions into durable sentiments of a corresponding nature, and of experienc-

ing these sentiments either at the sight or recollection of the pleasure or pain of beings sensitive like himself. And from this faculty, united with that of forming and combining ideas, arise between him and his fellow-creatures, the ties of interest and duty, to which nature has affixed the most exquisite portion of our felicity, and the most poignant of our sufferings.

WERE we to confine our observations to an enquiry into the general facts and unvarying laws which the developement of these faculties presents to us, in what is common to the different individuals of the human species, our enquiry would bear the name of metaphysics.

BUT if we consider this developement in its results, relative to the mass of individuals co-existing at the same time on a given space, and follow it from generation to generation, it then exhibits a picture of the progress of human intellect. This progress is subject to the same general laws, observable in the individual developement of our faculties; being the result of that very developement considered at once in a great number of individuals united in society. But the result which every instant presents, depends upon that of the preceding instants, and has an influence on the instants which follow.

THIS picture, therefore, is historical; since subjected as it will be to perpetual variations, it is formed by the successive observation of human societies at the different eras through which they have passed. It will accordingly exhibit the order in which the changes have taken place, explain the influence of every past period upon that which follows it, and thus show, by the modifications which the human species have experienced, in its incessant renovation through the immensity of ages, the

course which it has pursued, and the steps which it has advanced towards knowledge and happiness. From these observations on what man has heretofore been, and what he is at present, we shall be led to the means of securing and of accelerating the still further progress, of which, from his nature, we may indulge the hope.

SUCH is the object of the work I have undertaken; the result of which will be to show, from reasoning and from facts, that no bounds have been fixed to the improvement of the human faculties; that the perfectibility of man is absolutely indefinite; that the progress of this perfectibility, henceforth above the controul of every power that would impede it, has no other limit than the duration of the globe upon which nature has placed us. The course of this progress may doubtless be more or less rapid, but it can never be retrograde; at least while the earth retains its situation in the system of the universe, and the laws of this system shall neither effect upon the globe a general overthrow, nor introduce such changes as would no longer permit the human race to preserve and exercise therein the same faculties, and find the same resources.

THE first state of civilization observable in the human species, is that of a society of men, few in number, subsisting by means of hunting and fishing, unacquainted with every art but the imperfect one of fabricating in an uncouth manner their arms and some household utensils, and of constructing or digging for themselves an habitation; yet already in possession of a language for the communication of their wants, and a small number of moral ideas, from which are deduced their common rules of conduct, living in families, conforming themselves to general customs that serve instead of laws, and having even a rude form of government.

IN this state it is apparent that the uncertainty and difficulty of procuring subsistence, and the unavoidable alternative of extreme fatigue or an absolute repose, leave not to man the leisure in which, by resigning himself to meditation, he might enrich his mind with new combinations. The means of satisfying his wants are even too dependent upon chance and the seasons, useful to excite an industry, the progressive improvement of which might be transmitted to his progeny; and accordingly the attention of each is confined to the improvement of his individual skill and address.

FOR this reason, the progress of the human species must in this stage have been extremely slow; it could make no advance but at distant intervals, and when favored by extraordinary circumstances. Meanwhile, to the subsistence derived from hunting or fishing, or from the fruits which the earth spontaneously offered, succeeds the sustenance afforded by the animals which man has tamed, and which he knows how to preserve and multiply. To these means is afterwards added an imperfect agriculture; he is no longer content with the fruit or plants which chance throws in his way; he learns to form a stock of them, to collect them around him, to sow or to plant them, to favor their reproduction by the labor of culture.

PROPERTY, which, in the first state, was confined to his household utensils, his arms, his nets, and the animals he killed, is now extended to his flock, and next to the land which he has cleared and cultivated. Upon the death of its head, this property naturally devolves to the family. Some individuals possess a superfluity capable of being preserved. If it be absolute, it gives rise to new wants. If confined to a single article, while the proprietor feels the want of other articles, this

want suggests the idea of exchange. Hence moral relations multiply, and become complicate. A greater security, a more certain and more constant leisure, afford time for meditation, or at least for a continued series of observations. The custom is introduced, as to some individuals, of giving a part of their superfluity in exchange for labour, by which they might be exempt from labour themselves. There accordingly exists a class of men whose time is not engrossed by corporeal exertions and whose desires extend beyond their simple wants. Industry awakes ; the arts already known, expand and improve : the facts which chance presents to the observation of the most attentive and best cultivated minds, bring to light new arts ; as the means of living become less dangerous and less precarious, population increases ; agriculture, which can provide for a greater number of individuals upon the same space of ground, supplies the place of the other sources of subsistence ; it favours the multiplication of the species, by which it is favoured in its turn in a society become more sedentary, more connected, more intimate, ideas that have been acquired communicate themselves more quickly, and are perpetuated with more certainty. And now the dawn of the sciences begins to appear ; man exhibits an appearance distinct from the other classes of animals, and is no longer like them, confined to an improvement purely individual.

THE more extensive, more numerous and more complicated relations which men now form with each other, cause them to feel the necessity of having a mode of communicating their ideas to the absent, of preserving the remembrance of a fact with more precision than by oral tradition, of fixing the conditions of an agreement more securely

than by the memory of witnesses, of stating, in a way less liable to change, those respected customs to which the members of any society agree to submit their conduct.

Accordingly the want of writing is felt, and the art invented. It appears at first to have been absolute painting, to which succeeded a conventional painting, preserving such traits only as were characteristic of the objects. Afterwards, by a kind of metaphor analogous to that which was already introduced into their language, the image of a physical object became expressive of moral ideas. The origin of those signs, like the origin of words, were liable in time to be forgotten; and writing became the art of affixing signs of convention to every idea, every word, and of consequence to every combination of ideas and words.

THERE was now a language that was written, and a language that was spoken, which it was necessary equally to learn, between which there must be established a reciprocal correspondence.

SOME men of genius, the eternal benefactors of the human race, but whose names, and even country are for ever buried in oblivion, observed that all the words of a language were only the combinations of a very limited number of primitive articulations; but that this number, small as it was, was sufficient to form a quantity almost infinite of different combinations. Hence they conceived the idea of representing by visible signs, not the ideas or the words that answered to them, but those simple element of which the words are composed.

ALPHABETICAL writing was then introduced. A small number of signs served to express every thing in this mode, as a small number of sounds sufficed to express every thing orally. The language written and the language spoken were the

same; all that was necessary was to be able to know, and to form, the few given signs; and this last step secured for ever the progress of the human race.

It would perhaps be desirable at the present day, to institute a written language, which, devoted to the sole use of the sciences, expressing only such combinations of simple ideas as are found to be exactly the same in every mind, employed only upon reasonings of logical strictness, upon operations of the mind precise and determinate, might be understood by men of every country, and be translated into all their idioms, without being, like those idioms, liable to corruption, by passing into common use.

THEN, singular as it may appear, this kind of writing, the preservation of which would only have served to prolong ignorance, would become, in the hands of philosophy, an useful instrument for the speedy propagation of knowledge, and advancement of the sciences.

It is between this degree of civilization and that in which we still find the savage tribes, that we must place every people whose history has been handed down to us, and who, sometimes making new advancements, sometimes plunging themselves again into ignorance, sometimes floating between the two alternatives or stopping at a certain limit, sometimes totally disappearing from the earth under the sword of conquerors. mixing with those conquerors, or living in slavery: lastly, sometimes receiving knowledge from a more enlightened people, to transmit it to other nations,.... form an unbroken chain of connections between the earliest periods of history and the age in which we live, between the first people known to us, and the present nations of Europe.

IN the picture then which I mean to sketch, three distinct parts are perceptible.

IN the first, in which the relations of travellers exhibit to us the conditions of mankind in the least civilized nations, we are obliged to guess by what steps man in an isolated state, or rather confined to the society necessary for the propagation of the species, was able to acquire those first degrees of improvement, the last term of which is the use of an articulate language; an acquisition that presents the most striking feature, and indeed the only one, a few more extensive moral ideas and a slight commencement of social order excepted, which distinguishes him from animals living like himself in regular and permanent society. In this part of our picture, then, we can have no other guide than an investigation of the developement of our faculties.

To this first guide, in order to follow man to the point in which he exercises arts, in which the rays of science begin to enlighten him, in which nations are united by commercial intercourse; in which, in fine, alphabetical writing is invented, we may add the history of the several societies that have been observed in almost every intermediate state: though we can follow no individual one through all the space which separates these two grand epochs of the human mind.

HERE the picture begins to take its coloring in great measure from the series of facts transmitted to us by history: but it is necessary to select these facts from that of different nations, and at the same time compare and combine them, to form the supposed history of a single people, and delineate its progress.

FROM the period that alphabetical writing was known in Greece, history is connected by an unin-

errupted series of facts and observations with the period in which we live, with the present state of mankind in the most enlightened countries of Europe ; and the picture of the progress and advancement of the human mind becomes strictly historical. Philosophy has no longer any thing to guess, has no more suppositious combinations to form ; all it has to do is to collect and arrange facts, and exhibit the useful truths which arise from them as a whole, and from the different bearings of their several parts.

THERE remains only a third picture to form,.... that of our hopes, or the progress reserved for future generations, which the constancy of the laws of nature seems to secure to mankind. And here it will be necessary to shew by what steps this progress, which at present may appear chimerical, is gradually to be rendered possible, and even easy, how truth, in spite of the transient success of prejudices, and the support they receive from the corruption of governments or of the people, must in the end obtain a durable triumph ; by what ties nature has indissolubly united the advancement of knowledge with the progress of liberty, virtue, and respect for the natural rights of man ; how these blessings, the only real ones, though so frequently seen apart as to be thought incompatible, must necessarily amalgamate and become inseperable, the moment knowledge shall have arrived at a certain pitch in a great number of nations at once, the moment it shall have penetrated the whole mass of a great people, whose language shall have become universal, and whose commercial intercourse shall embrace the whole extent of the globe. This union having once taken place in the whole enlightened class of men, this class will be considered as the friends of human kind, exerting them-

selves in concert to advance the improvement and happiness of the species.

WE shall expose the origin and trace the history of general errors, which have more or less contributed to retard or suspend the advance of reason, and sometimes even, as much as political events, have been the cause of man's taking a retrograde course towards ignorance.

THOSE operations of the mind that lead to or retain us in error, from the subtle paralogism, by which the most penetrating mind may be deceived, to the mad reveries of enthusiasts, belong equally, with that just mode of reasoning that conducts us to truth, to the theory of the developement of our individual faculties; and for the same reason, the manner in which general errors are introduced, propagated, transmitted, and rendered permanent among nations, forms a part of the picture of the progress of the human mind. Like truths which improve and enliven it, they are the consequence of its activity, and of the disproportion that always exists between what it actually knows, what it has the desire to know, and what it conceives there is a necessity of acquiring.

It is even apparent, that, from the general laws of the developement of our faculties, certain prejudices must necessarily spring up in each stage of our progress, and extend their seductive influence beyond that stage; because men retain the errors of their infancy, their country, and the age in which they live, long after the truths necessary to the removal of those errors are acknowledged.

IN short, there exist, at all times and in all countries, different prejudices, according to the degree of illumination of the different classes of men, and according to their professions. If the prejudices of philosophers be impediments to new ac-

quisitions of truth, those of the less enlightened classes retard the propagation of truths already known, and those of esteemed and powerful professions oppose like obstacles. These are the three kinds of enemies which reason is continually obliged to encounter, and over which she frequently does not triumph till after a long and painful struggle. The history of these contests, together with that of the rise, triumph, and fall of prejudice, will occupy a considerable place in this work, and will by no means form the least important or least useful part of it.

If there be really such an art as that of foreseeing the future improvement of the human race, and of directing and hastening that improvement, the history of the progress it has already made must form the principal basis of this art. Philosophy, no doubt, ought to proscribe the superstitious idea, which supposes no rules of conduct are to be found but in the history of past ages, and no truths but in the study of the opinions of antiquity. But ought it not to include in the proscription, the prejudice that would proudly reject the lessons of experience? Certainly it is meditation alone that can, by happy combinations, conduct us to the general principles of the science of man. But if the study of individuals of the human species be of use to the metaphysician and moralist, why should that of societies be less useful to them? And why not of use to the political philosopher? If it be advantageous to observe the societies that exist at one and the same period, and to trace their connection and resemblance, why not to observe them in a succession of periods? Even supposing that such observation might be neglected in the investigation of speculative truths, ought it to be neglected when the question is to apply those truths to prac-

Vice, and to deduce from science the art that should be the useful result? Do not our prejudices, and the evils that are the consequence of them, derive their source from the prejudices of our ancestors? And will it not be the surest way of undeceiving us respecting the one, and of preventing the other, to develope their origin and effects?

ARE we not arrived at the point when there is no longer any thing to fear, either from new errors, or the return of old ones; when no corrupt institution can be introduced by hypocrisy, and adopted by ignorance or enthusiasm; when no vicious combination can effect the infelicity of a great people? Accordingly would it not be of advantage to know how nations have been deceived, corrupted, and plunged in misery!

EVERY thing tells us that we are approaching the era of one of the grand revolutions of the human race. What can better enlighten us to what we may expect, what can be a surer guide to us, amidst its commotions, than the picture of the revolutions that have preceded and prepared the way for it? The present state of knowledge assures us that it will be happy. But is it not upon condition that we know how to assist it with all our strength? And, that the happiness it promises may be less dearly bought, that it may spread with more rapidity over a greater space, that it may be more complete in its effects, is it not requisite to study, in the history of the human mind, what obstacles remain to be feared, and by what means those obstacles are to be surmounted?

I shall divide the space through which I mean to run, into nine grand epochs; and shall presume in a tenth, to advance some conjectures upon the future destiny of mankind.

I shall confine myself to the principal features that characterize each; I shall give them in the group, without troubling myself with exceptions or detail. I shall indicate the objects, of the results of which the work itself will present the developments and the proofs.

FIRST EPOCH.

MEN UNITED INTO HORDES.

WE have no direct information by which to ascertain what has preceded the state of which we are now to speak; and it is only by examining the intellectual or moral faculties, and the physical constitution of man, that we are enabled to conjecture by what means he arrived at this first degree of civilization.

ACCORDINGLY an investigation of those physical qualities favourable to the first formation of society, together with a summary analysis of the developement of our intellectual or moral faculties, must serve as an introduction to this epoch.

A society consisting of a family appears to be natural to man. Formed at first by the want which children have of their parents, and by the affection of the mother, as well as that of the father, though less general and less lively, time was allowed, by the long continuance of this want, for the birth and growth of a sentiment which must have excited the desire of perpetuating the union. The continuance of the want was also sufficient for the advantages of the union to be felt. A family placed upon a soil that afforded an easy subsistence, might afterwards have multiplied and become a horde.

HORDES that may have owed their origin to the union of several distinct families, must have been formed more slowly and more rarely, the union

depending on motives less urgent and the concurrence of a greater number of circumstances.

THE art of fabricating arms, of preparing aliments, of procuring the utensils requisite for this preparation, of preserving these aliments as a provision against the seasons in which it was impossible to procure a fresh supply of them—these arts, confined to the most simple wants, were the first fruits of a continued union, and the first features that distinguished human society from the society observable in many species of beasts.

IN some of these hordes, the women cultivate round the huts, plants which serve for food and supercede the necessity of hunting and fishing. In others, formed in places where the earth spontaneously offers vegetable nutriment, a part of the time of the savage is occupied by the care of seeking and gathering it. In hordes of the last description, where the advantage of remaining united is less felt, civilization has been observed very little to exceed that of a society consisting of a single family. Meanwhile there has been found in all the use of an articulate language.

MORE frequent and more durable connections with the same individuals, a similarity of interests, the succour mutually given, whether in their common hunting or against an enemy, must have equally produced both the sentiment of justice and a reciprocal affection between the members of the society. In a short time this affection would transform itself into attachment to the society.

THE necessary consequence was a violent enmity, and a desire of vengeance not to be extinguished, against the enemies of the horde.

THE want of a chief, in order to act in common, and thereby defend themselves the better, and procure with greater ease a more certain and

more abundant subsistence, introduced the first idea of public authority into these societies. In circumstances in which the whole horde was interested, respecting which a common resolution must be taken, all those concerned in executing the resolution were to be consulted. The weakness of the females, which exempted them from the distant chace and from war, the usual subjects of debate, excluded them alike from these consultations. As the resolutions demanded experience, none were admitted but such as were supposed to possess it. The quarrels that arose in a society disturbed its harmony, and were calculated to destroy it: it was natural to agree that the decision of them should be referred to those whose age and personal qualities inspired the greatest confidence. Such was the origin of the first political institutions.

THE formation of a language must have preceded these institutions. The idea of expressing objects by conventional signs appears to be above the degree of intelligence attained in this stage of civilization; and it is probable they were only brought into use by length of time, by degrees, and in a manner in some sort imperceptible.

THE invention of the bow was the work of a single man of genius; the formation of a language that of the whole society. These two kinds of progress belong equally to the human species. The one, more rapid, is the result of those new combinations which men favoured by nature are capable of forming; is the fruit of their meditations and the energies they display: the other, more slow, arises from the reflections and observations that offer themselves to all men, and from the habits contracted in their common course of life.

REGULAR movements adjusted to each other in due proportion, are capable of being executed with a less degree of fatigue; and they who see, or hear them, perceive their order and relation with greater facility. For both these reasons they form a source of pleasure. Thus the origin of the dance, of music and of poetry, may be traced to the infant state of society. They were employed for the amusement of youth and upon occasions of public festivals. There were at that period love songs and war songs; and even musical instruments were invented. Neither was the art of eloquence absolutely unknown in these hordes; at least they could assume in their set speeches a more grave and solemn tone, and were not strangers to rhetorical exaggeration.

THE errors that distinguish this epoch of civilization are the conversion of vengeance and cruelty towards an enemy into virtue; the prejudice that consigns the female part of society to a sort of slavery; the right of commanding in war considered as the prerogative of an individual family; together with the first dawn of various kinds of superstition. Of these it will be necessary to trace the origin and ascertain the motives. For man never adopts without reason any errors, except what his early education have in a manner rendered natural to him: if he embrace any new error, it is either because it is connected with those of his infancy, or because his opinions, passions, interests, or other circumstances, dispose him to embrace it.

THE only sciences known to savage hordes, are a slight and crude idea of astronomy, and the knowledge of certain medicinal plants employed in the cure of wounds and diseases; and even these are already corrupted by a mixture of superstition.

MEANWHILE there is presented to us in this epoch one fact of importance in the history of the human mind. We can here perceive the beginnings of an institution, that in its progress has been attended with opposite effects, accelerating the advancement of knowledge, at the same time that it disseminated error; enriching the sciences with new truths, but precipitating the people into ignorance and religious servitude, and obliging them to purchase a few transient benefits as the price of a long and shameful tyranny.

I mean the formation of a class of men the depositaries of the elements of the sciences or processes of the arts, of the mysteries or seremonies of religion, of the practices of superstition, and frequently even of the secrets of legislation and polity. I mean that separation of the human race into two portions; the one destined to teach, the other to believe; the one proudly concealing what it vainly boasts of knowing, the other receiving with respect whatever its teachers condescend to reveal: the one wishing to raise itself above reason, the other humbly renouncing reason, and debasing itself below humanity, by acknowledging in its fellow men prerogatives superior to their common nature.

THIS distinction, of which, at the close of the eighteenth century, we still see the remains in our priests, is observable in the least civilized tribes of savages who have already their quacks and sorcerers. It is too general, and too constantly meets the eye in all the stages of civilization, not to have a foundation in nature itself: and we shall accordingly find in the state of the human faculties at this early period of society, the cause of the credulity of the first dupes, and of the rude cunning of the first impostors.

SECOND EPOCH.

PASTORAL STATE OF MANKIND.....TRANSITION
FROM THAT TO THE AGRICULTURAL STATE.

THE idea of preserving certain animals taken in hunting, must readily have occurred, when their docility rendered the preservation of them a task of no difficulty, when the soil round the habitations of the hunters afforded these animals an ample subsistence, when the family possesses a greater quantity of them than it could for the present consume, and at the same time might have reason to apprehend the being exposed to want, from the ill success of the next chace, or the intemperature of the seasons.

FROM keeping these animals as a simple supply against a time of need, it was observed that they might be made to multiply, and thus furnish a more durable provision. Their milk afforded a farther resource: and those fruits of a flock, which, at first, were regarded only as a supplement to the produce of the chace, became the most certain, most abundant and least painful means of subsistence. Accordingly the chace ceased to be considered as the principal of these resources, and soon as any resource at all; it was pursued only as a pleasure, or as a necessary precaution for keeping beasts of prey from the flocks, which, become more numerous, could no longer find round the habitations of their keepers a sufficient nourishment.

A more sedentary and less fatiguing life afforded leisure favorable to the developement of the mind. Secure of subsistence, no longer anxious respecting their first and indispensable wants, men sought, in the means of providing for those wants, new sensations.

THE arts made some progress: new light was acquired respecting that of maintaining domestic animals, of favoring their production, and even of improving their breed.

WOOL was used for apparel, and cloth substituted in the place of skins.

FAMILY societies became more urbane, without being less intimate. As the flocks of each could not multiply in the same proportion, a difference of wealth was established. Then was suggested the idea of one man sharing the produce of his flocks with another who had no flocks, and who was to devote his time and strength to the care they require. Then it was found that the labor of a young and able individual was of more value than the expence of his bare subsistence; and the custom was introduced of retaining prisoners of war as slaves, instead of putting them to death.

HOSPITALITY, which is practised also among savages, assumes in the pastoral state a more decided and important character, even among those wandering hordes that dwell in their waggons or in their tents. More frequent occasions occur for the reciprocal exercise of this act of humanity between man and man, between one people and another..... It becomes a social duty, and is subjected to laws.

As some families possessed not only a sure subsistence, but a constant superfluity, while others were destitute of the necessaries of life, natural compassion for the sufferings of the latter gave birth to the sentiment and practice of beneficence.

MANNERS of course must have softened. The slavery of women became less severe, and the wives of the rich were no longer condemned to fatiguing labors.

A great variety of articles employed in satisfying the different wants, a great number of instruments to prepare these wants, and a greater inequality in their distribution, gave energy to exchange, and converted it into actual commerce: it was impossible it should extend without the necessity of a common measure and a species of money being felt.

HORDES became more numerous. At the same time, in order the more easily to maintain their flocks, they placed habitations, when fixed, more apart from each other; or changed them into moveable encampments, as soon as they had discovered the use of certain species of animals they had tamed, in drawing or carrying burthens.

EACH nation had its chief for the conduct of war; but being divided into tribes, from the necessity of securing pasturage, each tribe had also its chief. This superiority was attached almost universally to certain families. The heads however of families in possession of numerous flocks, a multitude of slaves, and who employ in their service a great number of poor, partook of the authority of the chiefs of the tribe, as these also shared in that of the chiefs of the nation; at least when, from the respect due to age, to experience, and the exploits they had performed, they were conceived to be worthy of it. And it is at this epoch of society that we must place the origin of slavery, and inequality of political rights between men arrived at the age of maturity.

THE consuls of the chiefs of the family or tribe decided, from ideas of natural justice or of esta-

blished usage, the numerous and intricate disputes that already prevailed. The tradition of these decisions, by confirming and perpetuating the usage, soon formed a kind of jurisprudence more regular and coherent than the progress of society had rendered in other respects necessary. The idea of property and its rights had acquired greater extent and precision. The division of inheritances becoming more important, there was a necessity of subjecting it to fixed regulations. The agreements that were entered into being more frequent, were no longer confined to such simple objects; they were to be subjected to forms; and the manner of verifying them, to secure their execution, had also its laws.

THE utility of observing the stars, the occupation which in long evenings they afforded to the mind, and the leisure enjoyed by the shepherds, effected a slight degree of improvement in astronomy.

BUT we observe advancing at the same time the art of deceiving men in order to rob them, and of assuming over their opinions an authority founded upon the hopes and fears of the imagination..... More regular forms of worship begin to be established, and systems of faith less coarsely combined. The ideas entertained of supernatural powers, acquire a sort of refinement; and with this refinement we see spring up in one place pontiff princes, in another sacerdotal families or tribes, in a third colleges of priests; a class of individuals uniformly affecting insolent prerogatives, separating themselves from the people, the better to enslave them, and seizing exclusively upon medicine and astronomy, that they may possess every hold upon the mind for subjugating it, and leave no means by which to unmask their hypocrisy, and break in pieces their chains.

LANGUAGES were enriched without becoming less figurative or less bold. The images employed were more varied and more pleasing. They were acquired in pastoral life, as well as in the savage life of the forests, from the regular phenomena of nature, as well as from its wildness and eccentricities. Songs, poetry, and instruments of music were improved during a leisure that produced an audience more peaceable, and at the same time more difficult to please, and allowed the artist to reflect on his own sentiments, examine his first ideas, and form a selection from them.

It could not have escaped observation that some plants yielded the flocks a better and more abundant subsistence than others.....The advantage was accordingly felt of favoring the production of these, of separating them from plants less nutritive, unwholesome, and even dangerous ; and the means of effecting this were discovered.

In like manner, where plants, grain, the spontaneous fruits of the earth, contributed with the produce of the flocks to the subsistence of man, it must equally have been observed how those vegetables multiplied ; and the care must have followed of collecting them nearer to the habitations ; of separating them from useless vegetables, that they might occupy a soil to themselves ; of securing them from untamed beasts, from the flocks, and even from the rapacity of other men.

THESE ideas must have equally occurred, and even sooner, in more fertile countries, where the spontaneous productions of the earth almost sufficed of themselves for the support of men ; who now began to devote themselves to agriculture.

In such a country, and under a happy climate, the same space of ground produces, in corn, roots, and fruit, wherewith to maintain a greater number

of men than if employed as pasturage. Accordingly, when the nature of the soil rendered not such cultivation too laborious, when the discovery was made of employing therein those same animals used by pastoral tribes for the transport from place to place of themselves and their effects, agriculture became the most plentiful source of subsistence, the first occupation of men ; and the human race arrived at the third epoch of its progress.

THERE are people who have remained, from time immemorial, in one of the two states we have described. They have not only not risen of themselves to any higher degree of improvement, but the connection and commercial intercourse they have had with nations more civilized have failed to produce this effect. Such connections and intercourse have communicated to them some knowledge, some industry, and a great many vices, but have never been able to draw them from their state of mental stagnation.

THE principal causes of this phenomenon are to be found in climate ; in habit ; in the sweets annexed to this state of almost complete independence, an independence not to be equalled but in a society more perfect even than our own ; in the natural attachment of man to opinions received from his infancy, and to the customs of his country ; in the aversion that ignorance feels to every sort of novelty ; in bodily and more especially mental indolence, which suppress the feeble and as yet scarcely existing spark of curiosity ; and lastly, in the empire which superstition already exercises over these infant societies. To these causes must be added the avarice, cruelty, corruption and prejudices of polished nations, who appear to these people more powerful, more rich, more informed, more active, but at the same time more vicious,

and particularly less happy than themselves. They must frequently indeed have been less struck with the superiority of such nations, than terrified at the multiplicity and extent of their wants, the torments of their avarice, the never ceasing agitations of their ever active, ever insatiable passions. This description of people has by some philosophers been pitied, and by others admired and applauded; these have considered as wisdom and virtue, what the former have called by the names of stupidity and sloth.

THE question in debate between them will be resolved in the course of this work. It will there be seen why the progress of the mind has not been at all times accompanied with an equal progress towards happiness and virtue; and how the leaven of prejudices and errors has polluted the good that should flow from knowledge, a good which depends more upon the purity of that knowledge than its extent. Then it will be found that the stormy and arduous transition of a rude society to the state of civilization of an enlightened and free people, implies no degeneration of the human species, but is a necessary crisis in its gradual advance towards absolute perfection. Then it will be found that it is not the increase of human knowledge, but its decline, that has produced the vices of polished nations, and that, instead of corrupting, it has in all cases softened, where it has been unable to correct or to change the manners of men.

THIRD EPOCH.

PROGRESS OF MANKIND FROM THE AGRICULTURAL STATE TO THE INVENTION OF ALPHABETICAL WRITING.

THE uniformity of the picture we have hitherto drawn will soon disappear; and we shall no longer have to delineate those indistinct features, those slight shades of difference, that distinguish the manners, characters, opinions and superstitions of men, rooted, as it were, to their soil, and perpetuating almost without mixture a single family.

INVASIONS, conquests, the rise and overthrow of empires, will shortly be seen mixing and confounding nations, sometimes dispersing them over a new territory, sometimes covering the same spot with different people.

FORTUITOUS events will continually interpose, and derange the slow but regular movement of nature, often retarding, sometimes accelerating it.

THE appearances we observe in a nation in any particular age, have frequently their cause in a revolution happening ten ages before it, and at a distance of a thousand leagues; and the night of time conceals a great portion of those events, the influence of which we see operating upon the men who have preceded us, and sometimes extending to ourselves.

BUT we have first to consider the effects of the change of which we are speaking, in a single people, and independently of the influence that conquests and the intermixture of nations may have exercised.

AGRICULTURE attaches man to the soil which he cultivates. It is no longer his person, his family, his implements for hunting, that it would suffice him to transport; it is no longer even his flocks which he might drive before him. The ground not belonging in common to all, he would find in his flight no subsistence, either for himself or the animals from which he derives his support.

EACH parcel of land has a master, to whom alone the fruits of it belong. The harvest exceeding the maintenance of the animals and men by whom it has been prepared, furnishes the proprietor with an annual wealth, that he has no necessity of purchasing with his personal labor.

IN the two former states of society, every individual, or every family at least, practised nearly all the necessary arts.

BUT when there were men, who, without labor, lived upon the produce of their land, and others who received wages; when occupations were multiplied, and the processes of the arts become more extensive and complicate, common interest soon enforced a separation of them..... It was perceived, that the industry of an individual, when confined to fewer objects, was more complete; that the hand executed with greater readiness and precision a smaller number of operations that long habit had rendered more familiar; that a less degree of understanding was required to perform a work well, when that work had been more frequently repeated.

ACCORDINGLY, while one portion of men devoted themselves to the labors of husbandry, others prepared the necessary instruments. The care of the flocks, domestic oeconomy, and the making of different articles of apparel, became in like manner distinct employments. As, in families possessing but little property, one of these occupations was insufficient of itself to engross the whole time of an individual, several were performed by the same person, for which he received the wages only of a single man. Soon the materials used in the arts increasing, and their nature demanding different modes of treatment, such as were analogous in this respect became distinct from the rest, and had a particular class of workmen. Commerce expanded, embraced a greater number of objects, and derived them from a greater extent of territory : and then was formed another class of men, whose sole occupation was the purchase of commodities for the purpose of preserving, transporting, or selling them again with profit.

THUS to the three classes of men before distinguishable in pastoral life, that of proprietors, that of the domestics of their family, and lastly, that of slaves, we must now add, that of the different kinds of artisans, and that of merchants.

THEN it was, that, in a society more fixed, more compact, and more intricate, the necessity was felt of a more regular and more ample code of legislation ; of determining with greater precision the punishments for crimes, and the forms to be observed as to contracts ; of subjecting to severer rules the means of ascertaining and verifying the facts to which the law was to be applied.

THIS progress was the slow and gradual work of necessity and concurring circumstances : it is but a step or two farther in the route we have already traced in pastoral nations.

IN the first two epochs, education was purely domestic. The children were instructed by residing with the father, in the common labors that were followed, or the few arts that were known. From him they received the small number of traditions that formed the history of the horde or of the family, the fables that had been transmitted, the knowledge of the national customs, together with the principles and prejudices that composed their pretty code of morality. Singing, dancing and military exercises they acquired in the society of their friends.

IN the epoch at which we are arrived, the children of the richer families received a sort of common education, either in town, from conversation with the old and experienced, or in the house of a chief to whom they attached themselves. Here it was they were instructed in the laws, customs and prejudices of the country, and learned to chant poems descriptive of the events of its history.

A MORE sedentary mode of life had introduced a greater equality between the sexes. The wives were no longer considered as simple objects of utility, as only the more familiar slaves of their master. Man looked upon them as companions, and saw how conducive they might be made to his happiness. Meanwhile, even in countries where they were treated with most respect, where polygamy was proscribed, neither reason nor justice extended so far as to an entire reciprocity as to the right of divorce, and equal infliction of punishment in cases of infidelity.

THE history of this class of prejudices, and of their influence on the lot of the human species, must enter into the picture I have proposed to draw; and nothing can better evince how closely man's happiness is connected with the progress of

SOME nations remained dispersed over the country. Others united themselves in towns, which became the residence of the common chief, called by a name answering to the word KING, of the chiefs of tribes who partook his power, and of the elders of every great family. There the common affairs of the society were decided, as well as individual disputes. There the rich brought together the most valuable part of his wealth, that it might be secure from robbers, who must of course have multiplied with sedentary riches. When nations remained dispersed over a territory, custom determined the time and place where the chiefs were to meet for deliberation upon the general interests of the community, and the adjudication of suits.

NATIONS who acknowledged a common origin, who spoke the same language, without abjuring war with each other, entered almost universally into a confederacy more or less close, and agreed to unite themselves, either against foreign enemies, or mutually to avenge their wrongs, or to discharge in common some religious duty.

HOSPITALITY and commerce produced even some lasting ties between nations different in origin, customs and language; ties that by robbery and war were often dissolved, but which necessity, stronger than the love of pillage or a thirst for vengeance, afterwards renewed.

To murder the vanquished, or to strip and reduce them to slavery, was no longer the only acknowledged right between nations inimical to each other. Cessions of territory, ransoms, tribute, in part supplied the place of those barbarous outrages.

AT this epoch every man that possessed arms was a soldier. He who had the best, and best knew how to exercise them, who could furnish arms for others, upon condition that they followed

him to the wars, and from the provision he had amassed was in a capacity to supply their wants, necessarily became a chief. But this obedience, almost voluntary, did not involve them in a servile dependence.

As there was seldom occasion for new laws ; as there were no public expences to which the citizens were obliged to contribute, and such as it became necessary to incur were defrayed out of the property of the chiefs, or the lands that were preserved in common ; as the idea of restricting industry and commerce by regulations was unknown ; as offensive war was decided by general consent, or undertaken by those only who were allured by the love of glory or desire of pillage ;... man believed himself free in these rude governments, notwithstanding the hereditary succession, almost universal, of their first chiefs or kings, and the prerogative, usurped by other subordinate chiefs, of sharing alone the political authority, and exercising the functions of government as well as of magistracy.

BUT frequently a king surrendered himself to the impulse of personal vengeance, to the commission of arbitrary acts of violence ; frequently, in these privileged families, pride, hereditary hatred, the fury of love and thirst for gold, engendered and multiplied crimes, while the chiefs assembled in towns, the instruments of the passions of kings, excited therein factions and civil wars, oppressed the people by iniquitous judgments, and tormented them by the enormities of their ambition and rapacity.

IN many nations the excesses of these families exhausted the patience of the people, who accordingly extirpated, banished, or subjected them to the common law ; it was rarely that their title, with

a limited authority, was preserved to them ; and we see take place what has since been called by the name of republics.

IN other places, these kings, surrounded with minions, because they had arms and treasures to bestow on them, exercised an absolute authority : and such was the origin of tyranny.

ELSEWHERE, particularly in countries where the small nations did not unite together in towns, the first forms of those crude institutions were preserved, till the period in which these people, either fell under the yoke of a conqueror, or, instigated by the spirit of robbery, spread themselves over a foreign territory.

THIS tyranny, compressed within too narrow a space, could have but a short duration. The people soon threw off a yoke which force alone imposed, and opinion had been unable to maintain..... The monster was seen too nearly not to excite more horror than dread : and force as well as opinion could forge no durable chains, if tyrants did not extend their empire to a distance sufficiently great to be able, by dividing the nation they oppressed, to conceal from it the secret of its own power and of their weakness.

THE history of republics belongs to the next epoch : but that which we are considering will presently exhibit a new spectacle.

AN agricultural people, subjected to a foreign power, does not abandon its hearths : necessity obliges it to labour for its masters.

SOMETIMES the ruling nation contents itself with leaving, upon the conquered territory, chiefs to govern, soldiers to defend it, and especially to keep in awe the inhabitants, and with exacting from the submissive and disarmed subjects a tribute in money or in provision.

SOMETIMES it seizes upon the territory itself, distributing the property of it to be the officers and soldiers: in that case it annexes to each estate the old occupiers that cultivated it, and subjects them to this new kind of slavery, which is regulated by laws more or less rigorous. Military service, and a tribute from the individuals of the conquered people, are the conditions upon which the enjoyment of these lands is granted to them.

SOMETIMES the ruling nation reserves to itself the property of the territory, and distributes only the usufruct upon the same conditions as in the preceding instance.

COMMONLY, however, all these modes of recompensing the instruments of conquest, and of robbing the vanquished, are adopted at the same time.

HENCE we see new classes of men spring up; the descendants of the conquering nation and those of the oppressed; an hereditary nobility, not however to be confounded with the patrician dignity of republics; a people condemned to labor, to dependence, to a state of degradation, but not to slavery; and lastly, slaves attached to the glebe, a class differing from that of domestic slaves, whose servitude is less arbitrary, and who may appeal against the caprices of their masters to the law.

IT is here also we may observe the origin of the feudal system, a pest that has not been peculiar to our own climate, but has found a footing in almost every part of the globe, at the same periods of civilization, and whenever a country has been occupied by two people between whom victory has established an hereditary inequality.

IN fine, despotism was also the fruit of conquest. By despotism I here mean, in order to distinguish it from tyrannies of a transient duration,

the oppression of a people by a single man, who governs it by opinion, by habit, and above all, by a military force, over the individuals of which he exercises himself an arbitrary authority, but at the same time is obliged to respect their prejudices, flatter their caprices, and soothe their avidity and pride.

PERSONALLY guarded by a numerous and select portion of this armed force, taken from the conquering nation or consisting of foreigners ; immediately surrounded by the most powerful military chiefs ; holding the provinces in awe by means of generals who have the controul of inferior detachments of this same armed body, the despot reigns by terror : nor is the possibility conceived, either by the depressed people, or any of those dispersed chiefs, rivals as they are to each other, of bringing against this man a force, which the armies he has at his command would not be able to crush at the instant.

A MUTINY of the guards, an insurrection in the capital, may be fatal to the despot, without crushing despotism. The general of an army, by destroying a family rendered sacred by prejudice, may establish a new dynasty, but it is only to exercise a similar tyranny.

IN this third epoch, the people who have yet not experienced the misfortune, either of conquering, or of being conquered, exhibit a picture of those simple but strong virtues of agricultural nations, those manners of heroic times, rendered so interesting by a mixture of greatness and ferocity, of generosity and barbarism, that we are still so far seduced as to admire and even regret them.

ON the contrary, in empires founded by conquerors, we are presented with a picture containing all the gradations and shades of that abasement and

corruption, to which despotism and superstition can reduce the human species. There we see spring up taxes upon industry and commerce, exactions obliging a man to purchase the right of employing as he pleases his own faculties, laws restricting him in the choice of his labour and use of his property, other laws compelling the children to follow the profession of their parents, confiscations, cruel and atrocious punishments, in short, all those acts of arbitrary power, of legalized tyranny, of superstitious wickedness, that a contempt of human nature has been able to invent.

IN hordes that have not undergone any considerable revolution, we may observe the progress of civilization stopping at no very elevated point..... Meanwhile men already felt the want of new ideas or sensations; a want which is the first moving power in the progress of the human mind, equally awakening a taste for the superfluities of luxury, inciting industry and a spirit of curiosity, and piercing with an eager eye the veil with which nature has concealed her secrets. But it has happened, almost universally, that, to escape this want, men have sought, and embraced with a kind of phrenzy, physical means of procuring sensations that may be continually renewed. Such is the practice of using fermented liquors, hot drinks, opium, tobacco, and betel. There are few nations among whom one or other of these practices is not observed, from which is derived a pleasure that occupies whole days, or is repeated at every interval, that prevents the weight of time from being felt, satisfies the necessity of having the faculties roused or employed, and at last blunting the edge of this necessity, thus prolongs the duration of the infancy and inactivity of the human mind. These practices, which have proved an obstacle to the pro-

gress of ignorant and enslaved nations, produce also their effects in wiser and more civilized countries, preventing truth from diffusing through all classes of men a pure and equal light.

By exposing what was the state of the arts in the first two periods of society, it will be seen how to those of working wood, stone, or the bones of animals, of preparing skins, and weaving cloths, these infant people were able to add the more difficult ones of dying, of making earthen ware, and even their first attempts upon metals.

IN isolated nations the progress of these arts must have been slow; but the intercourse, slight as it was, which took place between them, served to hasten it. A new method of proceeding, a better contrivance, discovered by one people, became common to its neighbors. Conquest, which has so often destroyed the arts, began with extending, and contributed to the improving of them, before it stopped their progress, or was instrumental to their fall.

WE observe many of these arts carried to the highest degree of perfection in countries, where the long influence of superstition and despotism has completed the degradation of all the human faculties. But, if we scrutinise the wonderful production of this servile industry, we shall find nothing in them which announces the inspiration of genius; all the improvements appear to be the slow and painful work of reiterated practice; every where may be seen, amidst this labour which astonishes us, marks of ignorance and stupidity that disclose its origin.

IN sedentary and peaceable societies, astronomy, medicine, the most simple notions of anatomy, the knowledge of plants and minerals, the first elements of the study of the phenomena of nature, acquired some improvement, or rather extended

IF they studied medicine and surgery, that part especially the object of which is the treatment of wounds, anatomy was neglected by them.

THEIR knowledge in botany, and in natural history, was confined to the articles used as remedies, and to some plants and minerals, the singular properties of which might assist their projects.

THEIR chymistry, reduced to the most simple processes, without theory, without method, without analysis, consisted in the making certain preparations, in the knowledge of a few secrets relative to medicine or the arts, or in the acquisition of some nostrums calculated to dazzle an ignorant multitude, subjected to chiefs not less ignorant than itself.

THE progress of the sciences they considered but as a secondary object, as an instrument of perpetuating or extending their power. They sought truth only to diffuse errors ; and it is not to be wondered they so seldom found her.

IN the mean time, slow and feeble as was this progress of every kind, it would not have been attainable, if these men had not known the art of writing, the only way by which traditions can be rendered secure and permanent, and knowledge, in proportion as it increases, be communicated and transmitted to posterity

ACCORDINGLY, hieroglyphic writing was either one of their first inventions, or had been discovered prior to the formation of casts assuming to themselves the prerogative of instruction.

As the view of these casts was not to enlighten, but to govern the mind, they not only avoided communicating to the people the whole of their knowledge, but adulterated with errors such portions as they thought proper to disclose. They

taught not what they believed to be true, but what they thought favorable to their own end.

EVERY thing which the people received from them had in it a strange mixture of something supernatural, sacred, celestial, which led these men to be regarded as beings superior to humanity, as invested with a divine character, as deriving from heaven itself information prohibited to the rest of mankind.

THESE men had therefore two doctrines, one for themselves, the other for the people. Frequently even, as they were divided into many orders, each order reserved to itself its own mysteries. All the inferior orders were at once both knaves and dupes ; and it was only by a few adepts that all the mazes of this hypocritical system were understood and developed.

No circumstance proved more favorable to the establishment of this double doctrine, than the changes which time, and the intercourse and mixtures of nations, introduced into language. The double-doctrine men, preserving the old language, or that of another nation, thereby secured the advantage of having one that was understood only by themselves.

THE first mode of writing, which represented things by a painting more or less accurate, either of the thing itself or of an analagous object, giving place to a more simple mode, in which the resemblance of these objects was nearly effaced, in which scarcely any signs were employed but such as were in a manner purely conventional, the secret doctrine came to have a writing, as it had before a language to itself.

IN the origin and upon the first introduction of language, almost every word is a metaphor, and every phrase an allegory. The mind catches at

once both the figurative and natural sense; the word suggests at the same instant with the idea, the analagous image by which it has been expressed. But from the habit of employing a word in a figurative sense, the mind alternately fixed upon that alone, heedless of the original meaning: and thus the figurative sense of a word became gradually its proper and ordinary signification.

THE priests by whom the first allegorical language was preserved, employed it with the people, who were no longer capable of discovering its true meaning; and who, accustomed to take words in one acceptation only, that generally received, pictured to themselves I know not what absurd and ridiculous fables, in expressions that conveyed to the minds of the priests but a plain and simple truth. The same use was made by the priests of their sacred writing. The people saw men, animals, monsters, where the priests meant only to represent an astronomical phenomenon, an historical occurrence of the year.

THUS, for example, the priests, in their contemplations, invented, and introduced almost every where, the metaphysical system of a great, immense and eternal ALL, of which the whole of the beings that existed were only parts, of which the various changes observable in the universe were but modifications. The heavens struck them in no other light than as groupes of stars dispersed thro' the immensity of space, planets describing motions more or less complicate, and phenomena purely physical resulting from their respective positions. They affixed names to these constellations and planets, as well as to the fixed or moveable circles, invented with a view to represent their situation and course, and explain their appearances.

BUT the language, the memorials, employed in

expressing these metaphysical opinions, these natural truths, exhibited to the eyes of the people the most extravagant system of mythology, and became the foundation of creeds the most absurd, modes of worship the most senseless, and practices the most shameful and barbarous.

SUCH is the origin of almost all the religions that are known to us, and which the hypocrisy or the extravagance of their inventors and their proselytes afterwards loaded with new fables.

THESE casts seized upon education, that they might fashion man to a more patient endurance of chains, embodied as it were with his existence, and extirpate the possibility of his desiring to break them. But, if we would know to what point, even without the aid of superstitious terrors, these institutions, so destructive to the human faculties, can extend their baneful power, we must look for a moment to China; to that people who seem to have preceded all others in the arts and sciences, only to see themselves successively eclipsed by them all; to that people whom the knowledge of artillery has not prevented from being conquered by barbarous nations; where the sciences, of which the numerous schools are open to every class of citizens, alone lead to dignities, and at the same time, fettered by absurd prejudices, are condemned to an internal mediocrity; lastly, where even the invention of printing has remained an instrument totally useless in advancing the progress of the human mind.

MEN, whose interest it was to deceive, soon felt a dislike to the pursuit of truth. Content with the docility of the people, they conceived there was no need of further means to secure its continuance. By degrees they forgot a part of the truths concealed under their allegories; they preserved no more of their ancient science than was strictly ne-

ecessary to maintain the confidence of their disciples ; and at last they became themselves the dupes of their own fables.

THEN was all progress of the sciences at a stand ; some even of those which had been enjoyed by preceding ages, were lost to the generation that followed ; and the human mind, a prey to ignorance and prejudice, was condemned, in those vast empires, to a shameful stagnation, of which the uniform and unvaried continuance has so long been a dishonor to Asia.

THE people who inhabit these countries are the only instance that is to be met with of such civilization and such decline. Those who occupy the rest of the globe either have been stopped in their career, and exhibit an appearance that again brings to our memory the infant days of the human race, or they have been hurried by events through the periods of which we have to illustrate the history.

AT the epoch we are considering, these very people of Asia have invented alphabetical writing, which they substituted in the place of hieroglyphics, probably after having employed that other mode, in which conventional signs are affixed to every idea, which is the only one that the Chinese are at present acquainted with.

HISTORY and reflection may throw some light upon the manner in which the gradual transition from hieroglyphics to this intermediary sort of art, must have taken place ; but nothing can inform us with precision either in what country, or at what time, alphabetical writing was first brought into use.

THE discovery was in time introduced into Greece, among a people who have exercised so powerful and happy an influence in the progress of the human species, whose genius has opened all the avenues to truth, whom nature had prepar-

ed, whom fate had destined to be the benefactor and guide of all nations and all ages ; an honor in which no other people has hitherto shared. One only nation has since dared to entertain the hope of presiding in a revolution new in the destiny of mankind. And this glory both nature and concurrence of events seem to agree in reserving for her. But let us not seek to penetrate what an uncertainty as yet conceals from us.

FOURTH EPOCH.

PROGRESS OF THE HUMAN MIND IN GREECE, TILL

THE DIVISION OF SCIENCES ABOUT THE AGE

OF ALEXANDER.

THE Greeks, disgusted with those kings, who, calling themselves the children of the gods, disgraced humanity by their passions and crimes, became divided into republics, of which Lacedæmonia was the only one that acknowledged hereditary chiefs; but these chiefs were kept in awe by other magistracies, were subjected, like citizens, to the laws, and were weakened by the division of royalty between the two branches of the family of the Heraclides.

THE inhabitants of Macedonia, of Thessaly, and of Epirus, allied to the Greeks by a common origin and the use of a similar language, and governed by princes weak and divided among themselves, though unable to oppress Greece, were yet sufficient to preserve it at the north from the incursions of Scythian nations.

AT the west, Italy, divided into small and unconnected states, could occasion no apprehensions; and already nearly the whole of Sicily, and the most delightful parts of the south of Italy, were occupied by Greek colonies, forming independent republics, but preserving at the same time, ties of filiation with their mother countries. Other colonies were established in the islands of *Ægean* sea, and upon part of the coasts of *Asia-Minor*.

ACCORDINGLY the union of this part of the Asiatic continent to the vast empire of Cyrus, was in the sequel the only real danger that could threaten the independence of Greece, and the freedom of its inhabitants.

TYRANNY, though more durable in some colonies, and in those particularly the establishment of which had preceded the extirpation of the royal families, could be considered only as a transient and partial evil, that inflicted misery on the inhabitants of a few towns, but without influencing the general spirit of the nation.

THE Greeks had derived from the eastern nations their arts, a part of their information, the use of alphabetical writing, and their system of religion: but it was in consequence of the intercourse established between herself and these nations by exiles, who sought an asylum in Greece, and by Greek travellers, who brought back with them from the East knowledge and errors.

THE sciences, therefore, could not become in this country the occupation and patrimony of an individual cast. The functions of priests were confined to the worship of the gods. Genius might display all its energies, without being fettered by the pedantic observances, the systematic hypocrisy of a sacerdotal college. All men possessed an equal right to the knowledge of truth. All might engage in the pursuit of it, and communicate it to all, not in scraps or parcels, but in its whole extent.

THIS fortunate circumstance, still more than political freedom, wrought in the human mind, among the Greeks, an independence, the surest pledge of the rapidity and greatness of its future progress.

IN the mean time their learned men, their sages, as they were called, but who soon took the

more modest appellation of philosophers, or friends of science and wisdom, wandered in the immensity of the two vast and comprehensive plan which they had embraced. They were desirous of penetrating both the nature of man, and that of the gods; the origin of the world, as well as of the human race. They endeavoured to reduce all nature to one principle only, and the phenomena of the universe to one law. They attempted to include, in a single rule of conduct, all the duties of morality, and secret of true happiness.

THUS, instead of discovering truths, they forged systems; they neglected the observation of facts, to pursue the chimeras of their imagination; and being no longer able to support their opinions with proofs, they sought to defend them by subtleties.

GEOMETRY and astronomy, however, were cultivated with success by these men. Greece owed to them the first elements of these sciences, and even some new truths, or at least the knowledge of such as they had brought with them from the East, not as established creeds, but as theories, of which they understood the principles and proofs.

WE even perceive, in the midst of the darkness of those systems, two happy ideas beam forth, which will again make their appearance in more enlightened ages.

DEMOCRITUS considered all the phenomena of the universe as the result of the combinations and motion of the simple bodies, of fixed and unalterable form, having received an original impulse, and thence derived a quantity of action that undergoes modifications in the individual atoms, but that in the entire mass continues always the same.

PYTHAGORAS was of opinion that the universe was governed by a harmony, the principles of which were to be unfolded by the properties of numbers; that is, that the whole phenomena of na-

ture depended upon general laws capable of being ascertained by calculation.

IN these two doctrines we readily perceive the bold systems of Descartes, and the philosophy of Newton.

PYTHAGORUS either discovered by his own meditation, or learned from the priests of Egypt or of Italy, the actual disposition of the heavenly bodies, and the true system of the world. This he communicated to the Greeks. But the system was too much at variance with the testimony of the senses, too opposite to the vulgar opinions, for the feeble proofs by which it could then be supported to gain much hold upon the mind. Accordingly it was confined to the Pythagorean school, and afterwards forgotten with that school, again to appear at the close of the sixteenth century, strengthened with more certain proofs, by which it now triumphed not only over the repugnance of the senses, but over the prejudices of superstition, still more powerful and dangerous.

THE Pythagorean school was chiefly prevalent in Upper Greece, where it formed legislators, and intrepid defenders of the rights of mankind. It fell under the power of tyrants, one of whom burnt the Pythagoreans in their own school. This was sufficient no doubt, to induce them not to abjure philosophy, not to abandon the cause of the people, but to bear no longer a name become so dangerous, or observe forms that would serve only to wake the lion rage of the enemies of liberty and of reason.

A GRAND basis of every kind of sound philosophy is to form for each science a precise and accurate language, every term of which shall represent an idea exactly determined and circumscribed; and to enable ourselves to determine and circum-

scribe the ideas with which the science may be conversant, by the mode of rigorous analysis.

THE Greeks on the contrary took advantage of the corruptions of their common language to play upon the meaning of words, to embarrass the mind by contemptible equivoques, and lead it astray by expressing successively different ideas by the same sign: a practice which gave acuteness to the mind, at the same time that it weakened its strength against chimerical difficulties. Thus this philosophy of words, by filling up the spaces where human reason seems to stop before some obstacle above its strength, did not assist immediately its progress and advancement, but it prepared the way for them; as we shall have further occasion to observe.

THE course of philosophy was stopped from its first introduction by an error at that time indeed excusable. This was the fixing the attention upon questions incapable perhaps for ever of being solved; suffering the mind to be led away by the importance or sublimity of objects, without thinking whether the means existed of compassing them; wishing to establish theories, before facts had been collected, and to frame the universe, before it was yet known how to survey it. Accordingly we see Socrates, while he combatted the sophists and exposed their subtleties to ridicule, crying to the Greeks to recal to the earth this philosophy which had lost itself in the clouds. Not that he despised either astronomy, or geometry, or the observation of the phenomena of nature; not that he entertained the puerile and false idea of reducing the human mind to the study of morality alone: on the contrary, it was to his school and his disciples that the mathematical and physical sciences were indebted for their progress; in the ridicule attempted to be

thrown upon him in theatrical representations, the reproach which afforded most pleasantry was that of his cultivating geometry, studying meteors, drawing geographical charts, and making experiments upon burning glasses, of which it is pleasant to remark, the earliest mention that has been transmitted to us, we owe to a buffonery of Aristophanes.

SOCRATES merely wished by his advice to induce men to confine themselves to objects which nature has placed within their reach; to be sure of every step already taken before they attempted any new one, and to study the space that surrounded them, before they precipitated themselves at random into an unknown space.

THE death of this man is an important event in the history of the human mind. It is the first crime that the war between philosophy and superstition conceived and brought forth.

THE burning of the Pythagorean school had already signalised the war, not less ancient, not less eager, of the oppressors of mankind against philosophy. The one and the other will continue to be waged as long as there shall exist priests or kings upon the earth; and these wars will occupy a conspicuous place in the picture that we have still to delineate.

PRIESTS saw with grief the appearance of men who, cultivating the powers of reason, ascending to first principles, could not but discover all the absurdity of their dogmas, all the extravagance of their ceremonies, all the delusion and fraud of their oracles and prodigies. This discovery they were afraid these philosophers would communicate to the disciples that frequented their schools; from whom it might pass to all those who, to obtain authority or credit, were obliged to pay attention to

the improvement of their minds; and thus the priestly empire be reduced to the most ignorant class of the people, which might at last be itself also undeceived.

HYPOCRISY, alarmed and terrified, hastened to bring accusations, against the philosophers, of impiety to the gods, that they might not have time to teach the people that these gods were the work of their priests. The philosophers thought to escape persecution by adopting, in imitation of the priests themselves, the practice of a double doctrine, and they confided to such of their disciples only whose fidelity had been proved, doctrines that too openly offended vulgar prejudices.

BUT the priests represented to the people the most simple truths of natural philosophy as blasphemies; and Anaxagoras was prosecuted for having dared to assert, that the sun was larger than Peloponnesus.

SOCRATES could not escape their fury. There was in Athens no longer a Pericles to watch over the safety of genius and of virtue. Besides, Socrates was still more culpable. His enmity to the sophists, and his zeal to bring back the attention of misguided philosophy to the most useful objects, announced to the priests that truth alone was the end he had in view; that he did not wish to enforce upon men a new system, and subject their imagination to his; but that he was desirous of teaching them to make use of their own reason: and of all crimes that is what sacerdotal pride knows least how to pardon.

It was at the very foot of the tomb of Socrates that Plato directed the lessons which he had received from his master.

His enchanting stile, his brilliant immaginati-

on, the cheerful and dignified colouring, the ingenious and happy traits, that, in his dialogues, dispel the dryness of philosophical discussion; the maxims of a mild and pure morality which he knew how to infuse into them; the art with which he brings his personages into action, and preserves to each his distinct character; all those beauties, which time and the révolution of opinion have been unable to tarnish, must doubtless have obtained a favorable reception for the visionary ideas that too often form the basis of his works, and that abuse of words which his master had so much censured in the sophists, but from which he could not preserve the first of his disciples.

IN reading these dialogues we are astonished at their being the production of a philosopher who, by an inscription placed on the door of his school, forbade the entrance of any one who had not studied geometry; and that he, who maintains with such confidence, systems so far fetched and so frivolous, should have been the founder of a sect by whom, for the first time, the foundations of the certainty of human knowledge were subjected to a severe examination, and even others made to tremble that a more enlightened reason might have been induced to respect.

BUT the contradiction disappears when we consider that in his dialogues, Plato never speaks in his own person; that Socrates, his master, is made to express himself with the modesty of doubt; that the systems are exhibited in the names of those who were, or whom Plato supposed to be, the authors of them; that hereby these dialogues are a school of pyrrhonism, and that Plato has known how to display in them at once the adventurous imagination of a learned man, amusing himself with combining and dissecting splendid hypothesis,

and the reserve of a philosopher, giving scope to his fancy, but without suffering himself to be hurried away by it; because his reason, armed with a salutary doubt, had wherewithal to defend itself against illusions, however seducing might be their charms.

THE schools, in which were perpetuated the doctrine and especially the principles and forms of a first institutor, to which however their respective successors by no means observed a servile adherence, these schools possessed the advantage of uniting together by the ties of a liberal fraternity, men intent upon penetrating the secrets of nature. If the opinion of the master had frequently an influence in them, that ought to belong only to the province of reason, and the progress of knowledge was thereby suspended; yet did they still more contribute to its speedy and extensive propagation, at a time when, printing being unknown, and manuscripts exceedingly rare, these institutions, the fame of which attracted pupils from every part of Greece, were the only powerful means of cherishing in that country a taste for philosophy, and of disseminating new truths.

THE rival schools contended with a degree of animosity that produced a spirit of party or sect; and not seldom was the interest of truth sacrificed to the success of some tenet, in which every member of the sect considered his pride in a manner as concerned. The personal passion of making converts corrupted the more generous one of enlightening mankind. But at the same time, this rivalry kept the mind in a state of activity that was not without its use. The continual sight of such disputes, the interest that was taken in these combats of opinion, awakened and attached to the study of philosophy a multitude of men, whom the

mere love of truth could neither have allured from their business and pleasure, nor even have roused from their indolence.

IN short, as these schools, these sects, which the Greeks had the wisdom never to introduce into the public institutions, remained perfectly free ; as every one had the power of opening another school, or forming a new sect, at his pleasure, there was no cause to apprehend that abasement of reason, which, with the majority of other nations, was an insurmountable obstacle to the advancement of the human mind.

LET us consider what was the influence of the philosophers of Greece on the understanding, manners, laws and governments of that country ; an influence that must be ascribed in a great measure to their not having, and even not wishing to have, a political existence ; to its being held as a rule of conduct common to all their sects, voluntarily to keep aloof from public affairs ; and lastly, to their affecting to distinguish themselves from other men by their lives, as well as their opinions.

IN delineating these different sects, we shall attend less to the systems, and more to the principles of their philosophy ; we shall not attempt, as has frequently been done, to exhibit a precise view of the absurd doctrines which a language, become almost unintelligible, conceals from us ; but shall endeavor to shew by what general errors they were seduced into those deceitful paths, and to find the origin of these in the natural course of the human mind.

ABOVE all things we shall be careful to display the progress of those sciences that really deserved the appellation, and the successive improvements that were introduced into them.

AT this epoch philosophy embraced them all,

medicine excepted, which was already separated from it. The writings of Hippocrates will shew us what was at that period the state of this science, as well as of those naturally connected with it, but which had yet no existence distinct from that connection.

THE mathematical sciences had been cultivated with success in the schools of Thales and Pythagoras. Meanwhile they rose there very little above the point at which they had stopped in the sacerdotal colleges of the Eastern nations. But from the birth of Plato's school they soared infinitely above that barrier, which the idea of confining them to an immediate utility and practice had erected.

THIS philosopher was the first who solved the problem of the duplication of the cube, by the hypothesis, indeed, of a continued motion; but the process was ingenious, and strictly accurate. His early disciples discovered the conic sections, and demonstrated their principal properties; thereby opening upon the human mind that vast horizon of knowledge, where, as long as the world shall endure, it may exercise its powers without ceasing, while every step the horizon retires as the mind advances.

THE sciences connected with politics did not derive from philosophy alone their progress among the Greeks. In these small republics, jealous of preserving both their independence and their liberty, the practice was almost generally prevalent of confiding to one man, not the power of making laws, but the function of digesting and presenting them to the people, by whom they were examined, and from whom they received their direct sanction.

THUS the people imposed a task on the philosopher, whose wisdom or whose virtues had recommended him to their confidence, but they conferred on him no authority; they exercised alone and of themselves what we have since called by the name of legislative power. But the practice, so fatal, of calling superstition to the aid of political institutions, has too often corrupted the execution of an idea so admirably fitted to give that systematic unity to the laws of a country, which alone can render their operation sure and easy, as well as maintain the duration of them. Nor had politics yet acquired principles sufficiently invariable not to fear that the legislators might introduce into these institutions their prejudices and their passions.

THEIR object could not be, as yet, to found upon the basis of reason, upon the rights which all men have equally received from nature, upon the maxims of universal justice, the superstructure of a society of men equal and free; but merely to establish laws by which the hereditary members of a society, already existing, might preserve their liberty, live secure from injustice, and, by exhibiting an imposing appearance to their neighbours, continue in the enjoyment of their independence.

As it was supposed that these laws, almost universally connected with religion, and consecrated by oaths, were to endure for ever, it was less an object of attention to secure to a people the means of affecting, in a peaceable manner, their reform, than to guard from every possible change such as were fundamental, and to take care that the reforms of detail neither incroached upon the system, nor corrupted the spirit of them.

SUCH institutions were sought for as were cal-

culated to cherish and give energy to the love of country, in which was included a love of its legislation and even usages; such an organization of powers, as would secure the execution of the laws against the negligence or corruption of magistrates, and the restless disposition of the multitude.

THE rich, who alone were in a capacity of acquiring knowledge, by seizing on the reins of authority might oppress the poor, and compel them to throw themselves into the arms of a tyrant..... The ignorance and fickleness of the people, and its jealousy of powerful citizens, might suggest to such citizens both the desire and the means of establishing aristocratic despotism, or of surrendering an enfeebled state to the ambition of its neighbors. Obligated to guard at once against both these rocks, the Greek legislators had recourse to combinations more or less happy, but always bearing the stamp of this sagacity, this artifice, which accordingly characterised the general spirit of the nation....

IT would be difficult to find in modern republics, or even in the plans sketched by philosophers, a single institution of which the Greek republics did not suggest the outlines, or furnish the example. For, in the Amphictyonic league, as well as in that of the Etolians, Arcadians, Achæans, we have instances of federal constitutions, of a union more or less close; and there were established a less barbarous right of nations, and more liberal rules of commerce between these different people, connected by a common origin, by the use of the same language, and by a similarity of manners, opinions and religious persuasions.

THE mutual relations of agriculture, industry and commerce, with the laws and constitution of a state, their influence upon its prosperity, power,

freedom, could not have escaped the observation of a people ingenious and active, and at the same time watchful of the public interest: and accordingly among them are perceived the first traces of that science, so comprehensive and useful, known at present by the name of political economy.

THE observation alone of established governments was therefore sufficient speedily to convert politics into an extensive science. Thus in the writings even of the philosophers, it is a science rather of facts, and, if I may so speak, empirical, than a true theory founded upon general principles, drawn from nature, and acknowledged by reason. Such is the point of view in which we ought to regard the political ideas of Aristotle and Plato, if we would discover their meaning, and form of them a just estimate.

ALMOST all the Greek institutions suppose the existence of slavery, and the possibility of uniting together, in a public place, the whole community of citizens: two most important distinctions, of which we ought never to lose sight, if we would judge rightly of the effect of these institutions, particularly on the extensive and populous nations of modern times. But upon the first we cannot reflect without the painful idea, that at that period the most perfect forms of government had for object the liberty or happiness of at most but half the human species.

WITH the Greeks, education was an important part of policy. Men were formed for their country, much more than for themselves or their family. This principle can only be embraced by common little populous, in which it is more pardonable to suppose a national interest, separate from the common interest of humanity. It is practicable only in countries where the most painful la-

bors of culture and of the arts are performed by slaves. This branch of education was restricted almost entirely to such bodily exercises, such manners and habits as were calculated to excite an exclusive patriotism; the other branches were acquired, as a matter of free choice in the schools of the philosophers or rhetoricians, and the shops of the artists; and this freedom was a farther cause of the superiority of the Greeks.

In their policy, as in their philosophy, a general principle is observable, to which history scarcely furnishes any exceptions: they aimed less in their laws at extirpating the causes of an evil, than destroying its effects, by opposing these causes one to another; they wished rather to take advantage of prejudices and vices, than to disperse or suppress them; they attended more frequently to the means by which to deform and brutalize man, to inflame, to mislead his sensibility, than to refine and purify the inclinations and desires, which are the necessary result of his moral constitution: errors occasioned by the more general one of mistaking for the man of nature, him who exhibited in his character the actual state of civilization, that is to say, man corrupted by prejudices, by the interest of factious passions, and by social habits.

THIS observation is of the more importance, and it will be the more necessary to developé its origin, in order the better to destroy it, as it has been transmitted to our own age, and still too often corrupts both our morals and our politics.

IF we compare the legislation, and particularly the form and rules of judicature in the Greek, or in the eastern nations, we shall find that, in some, the laws are a yoke to which force has bowed the necks of slaves; in others, the conditions of a common compact between the members of the society.

In some the object of legal form is, that the will of the master be executed ; in others that the liberty of the citizens be not oppressed. In some the law is made for the party that imposes it ; in others for the party that is to submit to it. In some the fear of the law is enforced, in others the love of it inculcated. And these distinctions we also find in modern nations, between the laws of a free people, and those of a country of slaves. In Greece we shall find that man possessed at least a consciousness of his rights, if he did not yet know them, if he could not fathom the nature, and embrace and circumscribe the extent of them.

AT this epoch, of the first dawn of philosophy and first advance of the sciences among the Greeks, the fine arts rose to a degree of perfection known at that time to no other people, and scarcely equalled since by almost any nation. Homer lived at the period of those dissensions which accompanied the fall of the tyrants, and the formation of republics. Sophocles, Euripides, Pindar, Thucydides, Demosthenes, Phidias, Apelles, were the contemporaries of Socrates or of Plato.

WE shall give a delineation of the progress of those arts ; we shall enquire into its causes ; we shall distinguish between what may be considered as a perfection of the art itself, and what is to be ascribed only to be the happy genius of the artist : a distinction calculated to destroy those narrow limits to which the improvement of the fine arts has been restricted. We shall explain the influence that forms of government, systems of legislation, and the spirit of religious observances have exercised on their progress, and shall examine what they have derived from the advances of philosophy, and what philosophy itself has derived from them.

WE shall shew that liberty, arts, knowledge, have contributed to the suavity and melioration of manners; that the vices of the Greeks, so often ascribed to their civilization, were those of ruder ages, and which the acquirements we have mentioned have in all instances qualified, when they have proved unable to extirpate them. We shall demonstrate that the eloquent declamations which have been made against the arts and sciences, are founded upon a mistaken application of history; and that, on the contrary, the progress of virtue has ever accompanied that of knowledge, as the progress of corruption has always followed or announced its decline.

FIFTH EPOCH.

PROGRESS OF THE SCIENCES, FROM THEIR DIVISION
TO THEIR DECLINE.

PLATO was still living when Aristotle, his disciple, opened, in Athens itself, a school, the rival of that of his master.

HE not only embraced all the sciences, but applied the method observed in philosophy to the arts of eloquence and poetry. He was the first whose daring genius conceived the propriety of extending this method to every thing attainable by human intelligence ; since, as this intelligence exercised in all cases the same faculties, it ought invariably to be governed by the same laws.

THE more comprehensive was the plan he formed, the more he felt the necessity of separating the different parts of it, and of fixing with greater precision the limits of each. And from this epoch the majority of philosophers, and even whole sects, are seen confining their attention to some only of those parts.

THE mathematical and physical sciences formed of themselves a grand division. As they were founded upon calculation and the observance of the phenomena of nature, as what they taught was independent of the opinions which embroiled the sects, they separated themselves from philosophy, over which these sects still reigned. They accordingly became the study of the learned, who had the wisdom almost universally to keep aloof from

the disputes of the schools, which were conducted in a manner calculated rather to promote the transient fame of the professors, than aid the progress of philosophy itself. And soon this word ceased to be employed, except for the purpose of expressing the general principles of the system of the world, metaphysics, logic, and morals, of which the science of politics formed a part.

FORTUNATELY the era of this division preceded the period in which Greece, after long struggles, was destined to lose her freedom. The sciences found, in the capital of Egypt, an asylum, which, by the despots who governed it, would probably have been refused to philosophy. But as the princes derived no inconsiderable portion of their riches and power from the united commerce of the Mediterranean and Asiatic seas, it was their interest to encourage sciences useful to navigation and commerce.

ACCORDINGLY, they escaped the speedy decline that was soon experienced by philosophy the splendor of which vanished with the departure of liberty. The tyranny of the Romans, so regardless of the progress of knowledge, did not extend to Egypt till a late period, and when the town of Alexandria was become necessary to the subsistence of Rome. By its population, its wealth, the great influx of strangers, the establishments formed by the Ptolemies, and which the conquerors did not give themselves the trouble to destroy, this town, the centre of commerce, and already possessing wherewith to be the metropolis of the sciences, was sufficient of itself to the preservation of their sacred flame.

THE sect of Academics, in which, from its origin, the mathematics had been cultivated, and

which confined its philosophical instruction almost entirely to proving the utility of doubt, and ascertaining the narrow limits of certainty, must of course have been a sect of men of learning; and as the doctrine had nothing in it calculated to give alarm to despots, it flourished in the school of Alexandria.

THE theory of conic sections, with the method of employing it, whether for the constructing of geometrical loci, or for the solution of problems, and the discovery of some other curves, extended the limits, hitherto so narrow, of the sciences of geometry.

ARCHIMEDES discovered the quadrature of the parabola, and measured the surface of the sphere. These were the first advances in the theory of limits which determines the ultimate value of a quantity, or, in other words, the value to which the quantity in an infinite progression incessantly approaches, but never attains; that theory which teaches how to determine the ratios of evanescent quantities, and by other processes to deduce from these ratios the propositions of finite magnitudes: in a word, that very calculus which the moderns, with more pride than justice, have termed the calculus of infinities. It was Archimedes who first determined the proportion of the diameter of a circle to its circumference in numbers nearly true; who taught us how to obtain values approaching nearer and nearer to accuracy, and made known the methods of approximation, that happy remedy for the defects of the known methods, and frequently of the science itself.

HE may, in some respect, be considered as the father of rational or theoretical mechanics. To him we are indebted for the theory of the lever, as well as the discovery of that principle of hydro-

statics, that a body immersed in any fluid, loses a portion of its weight equal to the mass of fluid it has displaced.

THE screw that bears his name, his burning glasses, the prodigies of the siege of Syracuse, attest his skill in the art of constructing mechanical instruments, which the learned had neglected, because the principles of the theory at that time known were inadequate to the attainment. These grand discoveries, these new sciences place Archimedes among these happy geniuses whose life forms an epoch in the history of man, and whose existence may be considered as one of the munificent gifts of nature.

IT is in the school of Alexandria that we find the first traces of algebra; that is to say, of the calculation of quantities considered simply as such. The nature of the problems proposed and resolved in the work of Diophantus, made it necessary that numbers should be considered as having a general value, undetermined in their particular relations, and subject only to certain conditions.

BUT this science had not then, as at present, its appropriate signs, methods and technical operations. The general value of quantities was represented by words; and it was only by means of a series of reasonings that the solution of problems was discovered and developed.

THE observations of the Chaldeans, transmitted to Aristotle by Alexander, accelerated the progress of astronomy. The most brilliant portion of them was due to the genius of Hipparchus. And if, after him in astronomy, as after Archimedes in geometry and mechanics, we no longer perceive those discoveries and acquisitions which change, as it were, the whole face of a science, they yet for a long time continued to improve, expand, and enrich themselves by the truths of detail.

IN his history of animals, Aristotle had laid down the principles and furnished an excellent model for observing with accuracy, and describing according to system, the objects of nature, as well as for classing those observations, and catching with readiness the general results which they exhibited. The history of plants and of minerals were treated afterwards by others, but with inferior precision, and with views less extensive and less philosophical.

THE progress of anatomy was very slow, not only because religious prejudices would not admit of the dissection of dead bodies, but from the vulgar opinion which regarded the touch of such bodies as a sort of moral defilement.

THE medical system of Hippocrates was nothing more than a science of observation, which as yet had led only to empirical methods. The spirit of sect, and the love of hypothetical positions soon infected it. But if the number of errors was greater than that of new truths, if the prejudices or systems of the practitioners did more harm than their observations were calculated to do good, yet it cannot be denied that the science made, during this epoch, a real, though very slight progress.

ARISTOTLE introduced into natural philosophy neither the accuracy nor the prudent reserve which characterise his history of animals. He paid tribute to the customs of his age, to the taste of the schools, by disfiguring it with those hypothetical data, which, from their vague nature, explain every thing with a sort of readiness, because they are able to explain nothing with precision.

BESIDES, observation alone was not enough; experiments were necessary: these demanded instruments; and it appears that at that time men had not sufficiently collected facts, had not examined them with the proper minuteness, to feel the want,

to conceive the idea of this mode of interrogating nature, and obliging her to answer us.

AT this epoch also, the history of the progress of natural philosophy is confined to a small number of truths, acquired by chance, and derived from observations furnished by the practice of the arts, rather than from the researches of the learned..... Hydraulics, and especially optics, present us with a harvest somewhat less sterile ; but these also consist rather of facts, which were remarked because they fell in the way and forced attention, than of theories or physical laws discovered by experiments or obtained by meditation and study.

AGRICULTURE had hitherto been confined to the simple routine and a few regulations, which priests, in transmitting them to the people, had corrupted with their superstition. It became with the Greeks, and still more with the Romans, an important and respected art ; and men of greatest learning employed themselves in collecting its usages and precepts. These collections of facts, precisely described and judiciously arranged, were useful to enlighten the practical cultivator, and to extend such methods as had proved valuable ; but the age of experiment and regular deduction was still very far off.

THE mechanic arts began to connect themselves with the sciences. Philosophers examined the labors, sought the origin, and studied the history of these arts ; at the same time they described the processes and fruits of those which were cultivated in different countries, and were induced to collect together their observations, and transmit them to posterity.

THUS Pliny, in the comprehensive plan of his natural history, includes man, nature and the arts..... This work is a valuable and complete inventory of

what at that time constituted the true stores of the human mind : nor can his claims to our gratitude be superseded by the charge, however merited, of his having collected with too little discrimination and too much credulity, what the ignorance or lying vanity of historians presented to his avidity, not to be satiated, of knowing every thing.

IN the midst of the decline of Greece, Athens, which, in the days of its power, had honored philosophy and letters, owed to them, in its turn, the preserving for a longer period some remains of its ancient splendor. In its tribune, indeed, the destinies of Greece and Asia were no longer decided ; it was however, in the schools of Athens that the Romans acquired the secrets of eloquence ; and it was at the feet of Demosthenes' lamp that the first of their orators was formed.

THE academy, the lyceum, the portico, the gardens of Epicurus, were the nursery and principal school of the four sects that disputed the empire of philosophy.

IT was taught in the academy, that every thing is doubtful ; that man can attain, as to any object, neither absolute certainty nor a true comprehension ; in fine, and it was difficult to go farther, that he could not be sure of this very impossibility of knowing any thing, and that it was proper to doubt even of the necessity of doubting.

THE opinions of different philosophers, were explained, defended and opposed in this school, but merely as hypotheses calculated to exercise the mind and illustrate more fully, by the uncertainty which accompanied these disputes, the vanity of human knowledge and absurdity of the dogmatical confidence of the other sects.

THIS doctrine, if it go no farther than to discountenance reasoning upon words to which we can

affix no clear and precise ideas ; than to proportion our belief in any proposition to the degree of probability it bears ; than to ascertain, as to every species of knowledge, the bounds of certainty we are able to acquire,.....this scepticism is then rational ; but when it extends to demonstrated truths ; when it attacks the principles of morality, it becomes either weakness or insanity ; and such is the extreme into which the sophists have fallen, who succeeded in the academy the first disciples of Plato.

WE shall follow the steps of these sceptics, and exhibit the cause of their errors. We shall examine what, in the extravagance of their doctrine, is to be ascribed to the passion, so prevalent, of distinguishing themselves by whimsical opinions ; and shall shew, that, though sufficiently refuted by the instinct of other men, by the instinct which directed these sophists themselves in the ordinary conduct of life, they were neither properly refuted, nor even understood, by the philosophers of the day.

MEANWHILE this sceptical mania did not possess the whole sect of academics ; and the doctrine of an eternal idea, just, comely, honest, independent of the interests and conventions of men, and even of their existence, an idea that, imprinted on the soul, becomes the principle of duty and the law of our actions, this doctrine derived from the dialogues of Plato, was still inculcated in his school, and constituted the basis of moral instruction.

ARISTOTLE was no better skilled than his master in the art of analysing ideas ; that is, of ascending step by step to the most simple ideas that have entered into their combination, of observing the formation of these simple ideas themselves, of following in these operations the regular procedure of the mind, and developement of its faculties.

His metaphysics, like those of the other philosophers, consisted of a vague doctrine, founded sometimes upon an abuse of words, and sometimes upon mere hypothesis.

To him, however, we owe that important truth, that first step in the science of the human mind, that OUR IDEAS, EVEN SUCH AS ARE MOST ABSTRACT, MOST STRICTLY INTELLECTUAL, SO TO SPEAK, HAVE THEIR ORIGIN IN OUR SENSATIONS. But this truth he failed to support by any demonstration. It was rather the intuitive perception of a man of genius, than the result of a series of observations accurately analysed, and systematically combined, in order to derive from them some general truth. Accordingly, this germ, cast in an ungrateful soil, produced no useful fruit till after a period of more than twenty centuries.

ARISTOTLE, in his dialects which have reduced all demonstrations to a train of arguments drawn up in a syllogistical form, and then divided all imaginable propositions under four heads, teaches us to discover, among the possible combinations of propositions of these four classes in collections of three and three, those which answer to the nature of conclusive syllogisms, and may be admitted without apprehension. In this way we may judge of the cogency or weakness of an argument, merely by knowing to what class it belongs : and thus the art of right reasoning is subjected in some measure to technical rules.

THIS ingenious idea has hitherto remained useless ; but perhaps it may one day become the leading steps toward a perfection which the art of reasoning and discussion seems still to expect.

EVERY virtue, according to Aristotle, is placed between two vices, of which one is its defect, and the other its excess ; it is only, as it were, one

of those natural inclinations which reason equally forbids us too strongly to resist, and too slavishly to obey.

THIS general principle must have been suggested to him by one of those vague ideas of order and conformity, so common at that time in philosophy; but he proved its truth, by applying it to the vocabulary of words which in the Greek language, expressed what were called the virtues.

ABOUT the same period, two new sects founding their systems of morality, at least in appearance, upon two contrary principles, divided the general mind, extended their influence beyond the limits of their schools, and hastened the fall of Greek superstition; but, unhappily a superstition more gloomy, more dangerous, more inimical to knowledge, was soon to succeed it.

THE stoics made virtue and happiness consist in the possession of a soul alike insensible to pleasure and to pain, free from all the passions, superior to every weakness, knowing no absolute good but virtue, no real evil but remorse. They believed that man was capable of raising himself to this elevation, if he possessed a strong and constant desire of doing so; and that then, independent of fortune, always master of himself, he was equally inaccessible to vice and calamity.

AN individual mind animates the world: it is present in every thing, if it be not every thing, if there exist any other thing than itself. The souls of human beings are emanations of it. That of the sage, who has not defiled the purity of his origin, is re-united, at the instant of death, to this universal spirit. Accordingly, to the sage, death would be a blessing, if, submissive to nature, har-

dened against what vulgar men call evils, it was not more glorious in him to regard it with indifference.

By Epicurus, happiness is placed in the enjoyment of pleasure, and in freedom from pain. Virtue, according to him, consists in following the natural inclinations of the heart, at the same time taking care to purify and direct them. The practice of temperance, which prevents pain, and, by preserving our faculties in their full force, secures all the enjoyments that nature has provided for us; the care to guard ourselves against hateful and violent passions that torment and rend the soul delivered up to their bitterness and fury; the farther care to cultivate, on the contrary, the mild and tender affections; to be frugal of pleasures that flow from benevolence; to preserve the soul in purity, that we may avoid the shame and remorse which punish vice, and enjoy the delicious sentiment that is the reward of laudable actions: such is the road that conducts at once both to happiness and virtue.

EPICURUS regarded the universe only as a collection of atoms, the different combinations of which were subjected to necessary laws. The human soul was itself one of those combinations..... The atoms which composed it united when the body began to live, were dispersed at the moment of death, to unite themselves again to the common mass, and enter into new combinations.

UNWILLING too violently to shock popular prejudices, he admitted of Gods; but indifferent to the actions of men, strangers to the order of the universe, and governed, like other beings, by the general laws of its mechanism, they were a sort of excrescence of the system.

MEN of morose, proud, and unjust characters, screened themselves under the mask of stoicism, while voluptuous and corrupt men frequently stole into the gardens of Epicurus. Some calumniated the principles of the Epicureans, who were accused of placing the sovereign good in the gratification of sensual appetites. Others turned into ridicule the pretensions of the sage Zeno, who whether a slave at the mill, or tormented with the gout, was equally happy, free and independent.

THE philosophy that pretended to soar above nature, and that which wished only to obey nature; the morality which acknowledged no other good than virtue, and that which placed happiness in the indulgence of the natural inclinations, led to the same practical consequences, though departing from such opposite principles, and holding so contrary a language. This resemblance between the moral precepts of all systems of religion, and all sects of philosophy, would be sufficient to prove that they have a foundation independent of the dogmas of those religions, or the principles of those sects; that it is in the moral constitution of man we must seek the basis of his duties, the origin of his ideas of justice and virtue: a truth which the sect of Epicureans approached more nearly than any other; and no circumstance perhaps so much contributed to draw upon it the enmity of all classes of hypocrites with whom morality was no commercial object of which they ambitiously contended for the monopoly.

THE fall of the Greek republics involved that of the political sciences. After Plato, Aristotle, and Xenophon, they almost ceased to be included in the system of philosophy.

BUT it is time to speak of an event that changed the lot of a considerable part of the world, and

exercised on the progress of the mind an influence that had reached even to ourselves.

If we except India and China, the city of Rome had extended its empire over every nation in which human intelligence had risen above the weakness of its earliest infancy.

IT gave laws to all the countries into which the Greeks had introduced their language, their sciences, and their philosophy; and these nations, held by a chain which victory had fastened to the foot of the capitol, no longer existed but by the will of Rome, and for the passions of its chiefs.

A TRUE picture of the constitution of this sovereign city will not be foreign to the object of this work. We shall there see the origin of hereditary patrician rank, and the artful means that were adopted to give it greater stability and force, by rendering it less odious; we shall there see a people inured to arms, but never employing them in domestic dissensions; uniting real power to legal authority, yet scarcely defending themselves against a haughty senate, that while it rivitted the chains of superstition, dazzled them at the same time with the splendor of their victories; a great nation, the sport in turn both of tyrants and its defenders, and the patient dupe, for four centuries, of a mode of taking votes, absurd but consecrated.

WE shall see this constitution, made for a single city, change its nature without changing its form, when it was necessary to extend it to a great empire unable to maintain itself but by continual wars, and presently destroyed by its own armies; and lastly, the people, the sovereign people, debased by the habit of being maintained at the expence of the public treasury, and corrupted by the bounty of the senators, selling to an individual the imaginary remains of their useless freedom.

THE ambition of the Romans led them to search in Greece for masters in the art of eloquence, which in Rome was one of the roads to fortune. That taste for exclusive and refined enjoyments, that want of new pleasures, which springs from wealth and idleness, made them court other arts of the Greeks, and even the conversation of their philosophers. But the sciences, philosophy, and the arts connected with painting, were plants foreign to the soil of Rome. The avarice of the conquerors covered Italy with the master pieces of Greece, taken by violence from the temples, from cities of which they constituted the ornament, and where they served as a consolation under slavery. But the productions of no Roman dared mix with them. Cicero, Lucretius and Seneca wrote eloquently in their language upon philosophy, but it was upon Grecian philosophy; and to reform the barbarous calendar of Numa, Cæsar was obliged to employ a mathematician from Alexandria.

ROME, long torn by the factions of ambitious generals, busied in new conquests, or agitated by civil discords, fell at last from its restless liberty, into a military despotism still more restless. And where, among the chiefs that aspired to tyranny, and soon after under the despots who feared truth and equally hated both talents and virtue, were the tranquil meditations of philosophy and the sciences to find a place? Besides, the sciences and philosophy are necessarily neglected as barren and unprofitable in every country where some honorable career, leading to wealth and dignities, is open to all whom their natural inclination may dispose to study: and such at Rome was that of jurisprudence.

WHEN laws, as in the east, are allied to religion, the right of interpreting them becomes one of

the strongest supports of sacerdotal tyranny. In Greece they had constituted a part of the code given to each city by its respective legislator, who had assimilated them to the spirit of the constitution and government which he established. They experienced but few alterations. The magistrates frequently abused them, and individual instances of injustice were not less frequent; but the vices of the laws never extended in Greece to a regular system of robbery, reduced to the cold forms of calculation. In Rome, where for a long time no other authority was known but the tradition of customs, where the judges declared every year by what principles disputes would be decided during the continuance of their magistracy, where the first written laws were a compilation from the Greek laws, drawn up by the decemvirs, more anxious to preserve their power than to honor it by presenting a sound code of legislation: in Rome, where, after that period, laws, dictated at one time by the party of the senate, and at another by the party of the people, succeeded each other with rapidity, and were incessantly either destroyed or confirmed, meliorated or aggravated by new declarations, the multiplicity, the complication and the obscurity of the laws, an inevitable consequence of the fluctuation of the language, soon made of this study a science apart. The senate, taking advantage of the respect of the people for the ancient institutions, soon felt that the privilege of interpreting laws was nearly equivalent to that of making new ones; and accordingly this body abounded with lawyers. Their power survived that of the senate itself; it increased under the emperors, because it is necessarily greater as the code of legislation becomes more anomalous and uncertain.

JURISPRUDENCE then is the only new science for which we are indebted to the Romans. We shall trace its history, since it is connected with the progress which the science of legislation has made among the moderns, and particularly with the obstacles which that legislation has had to encounter.

WE shall show, that respect for the positive law of the Romans has contributed to preserve some ideas of the natural law of men, in order afterwards to prevent these ideas from encreasing and extending themselves; and that while we are indebted to their code for a small quantity of truths, it has furnished us with a far greater portion of tyrannical prejudices.

THE mildness of the penal laws, under the republic, is worthy our notice. They in a manner rendered sacred the blood of a Roman citizen.... The penalty of death could not be inflicted, without calling forth that extraordinary power which announced public calamities and danger to the country. The whole body of the people might be claimed as judge between a single individual and the republic. It was found that, with a free people, this mildness was the only way to prevent political dissensions from degenerating into cruel massacres; the object was to correct, by the humanity of the laws, the ferocious manners of a people that, even in its sports, squandered profusely the blood of its slaves. Accordingly, stopping at the times of the Gracchi, in no country have storms so numerous and violent been attended with so few crimes, or cost so little blood.

No work of the Romans upon the subject of politics has descended to us. That of Cicero upon laws was probably but an embellished extract from the books of the Greeks, It was not amidst the convulsions of expiring liberty, that moral sci-

ence could refine and perfect itself. Under the despotism of the Cæsars, study would have experienced no other construction than a conspiracy against their power. In short, nothing more clearly proves how much the Romans were ignorant of this science, than the example they furnish us, not to be equalled in the annals of history, of an uninterrupted succession, from Nerva to Marc Antony, of five emperors, possessing at once virtue, talents, knowledge, a love of glory, and zeal for the public welfare, without a single institution originating from them that has marked the desire of fixing bounds to despotism, of preventing revolutions, and of cementing by new ties the parts of that huge mass, of which every thing predicted the approaching dissolution.

THE union of so many nations under one sovereignty, the spreading too of languages which divided the empire, and which were alike familiar to almost every well-informed mind, these causes, acting in concert, must have contributed, no doubt, to the more equal diffusion of knowledge over a greater space. Another natural effect must have been to weaken by degrees the differences which separated the philosophical sects, and to unite them into one, that should contain such opinions of each as were most conformable to reason, and which a sober investigation had tended to confirm. This was the point to which reason could not fail to bring philosophers, when, from the effect of time on the enthusiasm of sectaries, her voice alone was suffered to be heard. Accordingly, we find already, in Seneca, marks of this philosophy: indeed it was never entirely distinct from the sect of the academics, which at length appeared to become entirely the same with it; and the most modern of the disciples of Plato were the founders of the sect of electics.

ALMOST every religion of the empire had been national ; but they all possessed strong lines of resemblance, and in a manner a family likeness. No metaphysical doctrines ; many strange ceremonies, of the meaning of which the people, and frequently the priest, were ignorant ; an absurd mythology, in which the multitude read the marvellous history of its Gods only, but which men better enlightened suspected to be an allegory of doctrines more sublime ; bloody sacrifices ; idols representing gods, and of which some possessed a celestial virtue ; pontiffs devoted to the worship of each divinity, but without forming a political corps, and even without being united in a religious communion ; oracular powers attached to certain temples, residing in certain statues ; and lastly, mysteries which their hierophants never revealed without imposing an inviolable law of secrecy. These were the features of resemblance :

LET us add, that the priests, arbiters of the religious conscience, had presumed to assert no claim upon the moral conscience ; that they directed the practice of worship, but not the actions of private life. They sold oracles and auguries to political powers ; they could precipitate nations into war ; they could dictate to them crimes ; but they exercised no influence either over the government or the laws.

WHEN the different nations, subjects now of the same empire, enjoyed an habitual intercourse, and knowledge had every where made nearly an equal progress, it was soon discovered, by well-informed minds, that all this multifarious worship was that of one only God, of whom the numerous divinities, the immediate objects of popular adoration, were but the modifications or the ministers.

MEANWHILE, among the Gauls, and in some cantons of the east, the Romans had found religions of another kind. There the priests were the arbiters of morality; and virtue consisted in obedience to a God, of whom they called themselves the sole interpreters. Their power extended over the whole man; the temple and the country were confounded: without being previously an adorer of Jehova, or *Æsus*, it was impossible to be a citizen or subject of the empire; and the priests determined to what human laws their God exacted obedience.

THESE religions were calculated to wound the pride of the masters of the world. That of the Gauls was too powerful for them not to seek immediately its destruction. The Jewish nation was even dispersed. But the vigilance of government either disdained, or else was unable to reach, the obscure sects that secretly formed themselves out of the wreck of the old system of worship.

ONE of the benefits resulting from the propagation of the Greek philosophy, had been to put an end to a belief in the popular divinities in all classes of men who had received any tolerable education.... A vague kind of deism, or the pure mechanism of Epicurus, was, even at the time of Cicero, the common doctrine of every enlightened mind, and of those who had the direction of public affairs. This class of men was necessarily attached to the old religion, which however it sought to purify from its dross; for the multiplicity of Gods of every country had tired out even the credulity of the people. Then were seen philosophers forming systems upon the idea of interposing genii, and submitted to preparatory observances, rites, and a religious discipline, to render themselves more worthy of approaching these superior essences; and it

was in the dialogues of Plato they sought the principles of this doctrine.

THE inhabitants of conquered nations, the children of misfortune, men of weak but sanguine imagination, would from preference attach themselves to the sacerdotal religions; because the interest of the ruling priests dictated to them that very doctrine of equality in slavery, of the renunciation of temporal enjoyments, of rewards in heaven reserved for blind submission, for sufferings, for mortifications inflicted voluntarily, or endured without repining; that doctrine so attractive, so consolatory to oppressed humanity! But they felt the necessity of relieving, by metaphysical subtleties, their gross mythology: and here again they had recourse to Plato. His dialogues were the arsenal to which two opposite parties resorted to forge their theological arms. In the sequel we shall see Aristotle obtaining a similar honor, and becoming at once the master of the theologians, and chief of the athiests.

TWENTY Egyptian and Jewish sects, united their forces against the religion of the empire, but contending against each other with equal fury, were lost at length in the religion of Jesus. From their wreck were composed a history, a creed, a ritual, and a system of morality, to which by degrees the mass of these fanatics attached themselves.

THEY all believed in a Christ, a Messiah sent from God to restore the human race. This was the fundamental doctrine of every sect that attempted to raise itself upon the ruins of the ancient sects. They disputed respecting the time and place of his appearance, and his mortal name: but a prophet, said to have started up in Palestine, in the reign of Tiberius, eclipsed all the other expected pro-

phets, and the new fanatics rallied under the standard of the Son of Mary.

IN proportion as the empire weakened the progress of this religion of Christ became more rapid. The degraded state of the ancient conquerors of the world extended to their Gods, who, after presiding in their victories, were no longer regarded than as the impotent witnesses of their defeat..... The spirit of the new sect was better suited to periods of decline and misfortune. Its chiefs, in spite of their impostures and their vices, were enthusiasts ready to suffer death for their doctrine..... The religious zeal of the philosophers and of the great, was only a political devotion; and every religion which men permit themselves to defend as a creed useful to be left to the people, can expect no other fate than a dissolution more or less distant. Christianity soon became a powerful party; it mixed in the quarrels of the Cæsars: it placed Constantine on the throne, where it afterwards seated itself, by the side of his weak successors.

IN vain did one of those extraordinary men whom chance sometimes exalts to sovereign power, Julian, wish to free the empire from this plague which was calculated to hasten its fall. His virtues, his indulgent humanity, the simplicity of his manners, the dignity of his soul and his character, his talents, his courage, his military genius, the splendor of his victories, every thing seemed to promise him success. No other reproach could be cast upon him than that of showing for a religion, become ridiculous, an attachment unworthy of him if sincere, indiscreet from its extravagance if political: but he died in the midst of his glory, after a reign of two years. The Colossus of the Roman Empire found its arms no longer sufficiently strong to support the weight of it; and the

death of Julian broke down the only mound that might yet have opposed itself against the torrent of new superstitions, and the inundations of barbarians.

CONTEMPT for human sciences was one of the first features of Christianity. It had to avenge itself of the outrages of philosophy ; it feared that spirit of investigation and doubt, that confidence of man in his own reason, the pest alike of all religious creeds. The light of the natural sciences was even odious to it, and was regarded with a suspicious eye, as being a dangerous enemy to the success of miracles : and there is no religion that does not oblige its sectaries to swallow some physical absurdities. The triumph of Christianity was thus the signal of the entire decline both of the sciences and of philosophy.

HAD the art of printing been known, the sciences would have been able to preserve their ground ; but the existing manuscripts of any particular book were few in number ; and to procure works that might form the entire body of a science, required cares, and often journies, and an expence to which the rich only were competent. It was easy for the ruling party to suppress the appearance of books which shocked its prejudices, or unmasked its impostures. An incursion of barbarians might, in one day, deprive, forever, a whole country of the means of knowledge. The destruction of a single manuscript was often an irreparable and universal loss. Besides, no works were copied but such as were recommended by the names of the authors. All those investigations which can acquire importance only from their assemblage, those detached observations, those improvements of detail, that serve to keep the sciences flowing in a level channel, and that prepare their future pro-

gress ; all those materials which time amasses, and which await the birth of genius, were condemned to an eternal obscurity. That concert of learned men, that combination of all their forces, so advantageous, so indispensable at certain periods, had no existence. It was necessary for the same individual to begin and complete a discovery ; and he was obliged to combat, with his single strength, all the obstacles which nature opposes to our efforts. The works which facilitate the study of the sciences, which throw light upon difficulties, which exhibit truths under more commodious and more simple forms, those details of observation, those developements which serve to detect erroneous inferences, and in which the reader frequently catches what the author himself has not perceived ; such works would find neither copyists nor readers.

It was then impossible that the sciences, arrived at a point in which the progress, and even the study of them were still difficult, should be able to support themselves, and resist the current that bore them rapidly towards their decline. Accordingly it ought not to astonish us that Christianity, though unable in the sequel to prevent their re-appearance in splendor, after the invention of printing, was at this period sufficiently powerful to accomplish their ruin.

If we except the dramatic art, which flourished only in Athens, and must have been involved in her fall, and eloquence, which cannot breathe but in a free air, the language and literature of the Greeks preserved for a long time their lustre. Lucian and Plutarch would not disparage the age of Alexander. Rome, it is true, rose to a level with Greece in poetry, eloquence, history, and the art of treating with dignity, elegance and fascination, the dry subjects of philosophy and the sciences.....

Greece indeed had no poet, that evinced so fully as Virgil, the idea of perfection, and no historian to be compared with Tacitus. But this instant of splendor was followed by a speedy decline. From the time of Lucian, Rome had scarcely any writers above barbarism. Chrysostom still speaks the language of Demosthenes. We recognize no longer that of Cicero or of Livy, either in Austin, or even in Jerome, who has to plead in his excuse the influence of African barbarity.

THE cause is, that at Rome the study of letters and love of the arts were never the real taste of the people; that the transient perfection of its language was the work, not of the national genius, but of a few individuals whom Greece had been the instrument of forming. The cause is, that the Roman territory was always, as to letters, a foreign soil, to which an assiduous culture had been able to naturalize them, but where they must necessarily degenerate the moment they were abandoned to themselves.

THE importance so long affixed, in Greece and in Rome, to the tribune and the bar, increased in those countries the class of rhetoricians. Their labors have contributed to the progress of the art, of which they have developed the principles and subtleties. But they taught another art too much neglected by the moderns, and which at present it has been thought proper to transfer from speeches for the tribune, to compositions for the press: I mean that of preparing with facility, and in a short space of time, discourses, which, from the arrangement of their parts, from the method conspicuous in them, from the graces with which they may be embellished, shall at least become supportable: I mean the art of being able to speak almost instantaneously, without fatiguing the auditors with a

medley of ideas, or a diffuse style ; without disgusting them with idle declamation, quaint conceits, nonsense and fopperies. How useful would be this art in every country where the functions of office, public duty, or private interest may oblige men to speak and write, without having time to study their speeches or their compositions ? Its history is the more deserving our attention, as the moderns, to whom in the mean time it must be often necessary, appear only to have known it on the side of absurdity.

FROM the commencement of the epoch of which I shall here terminate the delineation, manuscripts were tolerably numerous ; but time had spread over the performances of the first Greek writers a sufficient number of obscurities, for the study of books and opinions, known by the name of erudition, to form an important portion of the occupations of the mind ; and the Alexandrian library was crowded with grammarians and critics.

IN what has been transmitted to us of their productions, we perceive a propensity in these critics to proportion their degree of confidence and admiration of any book to its antiquity, and the difficulty of understanding and procuring it ; a disposition to judge opinions not by themselves, not according to their merits, but from the names of their authors ; to found their belief on authority, rather than upon reason ; in short, that false and destructive idea of the deterioration of the human race, and superiority of ancient periods. The solution and excuse of this error, an error in which the antiquarians of every country have had a greater or less share, are to be found in the importance which men affix to what has been the object of their attention, and called forth the energies of their mind.

THE Greek and Roman antiquarians, and even their literati and philosophers, are chargeable with a total neglect of that spirit of doubt which subjects to a rigorous investigation both facts, and the proofs that establish them. In reading their accounts of the history of events, or of manners, of the productions and phenomena of nature, or of the works and processes of the arts, we are astonished at the composure with which they relate the most palpable absurdities, and the most fulsome and disgusting prodigies. A hearsay or rumor which they found tacked to any event, was sufficient they conceived, to screen them from the censure of childish credulity. This indifference, which spoiled their study of history, and was an obstruction to their advancement in the knowledge of nature, is to be ascribed to the misfortune of the art of printing not being known. The certainty of our having collected, respecting any fact, all the authorities for and against it, a facility in comparing the different testimonies, the opportunity of throwing light upon the subject by the discussions to which that difference may give rise, are means of ascertaining truth which can only exist when it is possible to procure a great number of books, when copies of them may be indefinitely multiplied, and when no fear is entertained of giving them too extensive a circulation.

How were the relations and descriptions of travellers, of which there frequently existed but a single copy, descriptions that were not subjected to public judgment, to acquire that stamp of authority, founded upon the circumstance of such judgment not having, and not being able, to contradict them? Accordingly, every thing was recorded alike, because it was impossible to ascertain with

any certainty what was deserving of record. But we can have no right to astonishment at this practice of representing with equal confidence, and as founded upon equal authorities, facts the most natural, and miracles the most stupendous ; the same error is still inculcated in our schools as a principle of philosophy, while in another sense, an overweening incredulity leads us to reject without examination whatever appears to us to be out of nature ; nor has the science in our days begun to exist, that can alone teach us to find, between these two extremes, the point at which reason directs us to stop.

SIXTH EPOCH.

DECLINE OF LEARNING, TO ITS RESTORATION ABOUT THE PERIOD OF THE CRUSADES.

IN the disastrous epoch at which we are now arrived, we shall see the human mind rapidly descending from the height to which it had raised itself, while ignorance marches in triumph, carrying with her, in one place, barbarian ferocity; in another, a more refined and accomplished cruelty; every where, corruption and perfidy. A glimmering of talents, some faint sparks of greatness or benevolence of soul, will, with difficulty, be discerned amidst the universal darkness. Theological reveries, superstitious delusions, are become the sole genius of man, religious intolerance his only morality; and Europe, crushed between sacerdotal tyranny and military despotism, awaits, in blood and in tears, the moment when the revival of light shall restore it to liberty, to humanity and to virtue.

WE shall divide the picture into two distinct parts. / The first will embrace the west, where the decline was more rapid and more absolute, but where the light of reason is again to make its appearance, never more to be extinguished. The second will be confined to the east, where the decline was more slow, and, for a long time, less universal, but when the day of reason has not yet dawned, that shall enlighten it, and enable it to break in pieces its chains.

CHRISTIAN piety had scarcely overthrown the altars of victory, when the west became the prey of barbarians. They embraced the new religion, without adopting the language of the vanquished. This the priests alone preserved; but, from their ignorance and contempt for human learning, they exhibited none of those appearances which might have been expected from a perusal of the Latin books, particularly when they only were capable of reading them.

THE illiterate character, and rude manners of the conquerors, are sufficiently known: meanwhile, it was in the midst of this ferocious stupidity that the destruction of domestic slavery took place; a slavery that had disgraced the best days of Greece, when a country distinguished for learning and liberty.

THE rural slaves, serfs of the glebe, cultivated the lands of the conquerors. By this oppressed class of men their houses were supplied with domestics, whose dependent situation answered all the purposes of their pride or their caprice. Accordingly, the object of their wars was not slaves, but lands and colonies.

BESIDE, the domestic slaves which they found in the countries they invaded, were in a great measure either prisoners taken from some tribe of the victorious nation, or the children of those prisoners. Many, at the moment of conquest, had fled or else joined themselves to the army of the conquerors.

THE principles of general fraternity, which constituted a part of the Christian morals, also condemned slavery; and, as the priests saw no political reason for contradicting, in this particular, maxims, that did honor to their cause, they contributed by their discourses, to a downfall which

otherwise events and manners would necessarily have accomplished.

THIS change has proved the generative principle of a revolution in the destinies of mankind. To this men are indebted for the knowledge of true liberty. But its influence on the lot of individuals was at first almost insensible. We should form a very false idea of domestic slavery as it existed at this period and among the ancients, if we compared it to that of our negroes. The Spartans, the grandees of Rome, and the Satraps of the east, were, no doubt, barbarous masters. Avarice displayed all its brutality in the labors of the mines; but, on the other hand, interest had almost everywhere softened the state of slavery in private families. The impunity granted for violences committed against the rural slave, was carried to a high pitch, since the law had exactly fixed its price..... His dependence was as great as that of the domestic, without being compensated by the same attentions. He was less perpetually under the eye of his master; but he was treated with a more lordly arrogance. The domestic was a slave whom fortune had reduced to a condition, to which a similar fortune might one day reduce his master. The rural slave, on the contrary, was considered as of a lower class, and in a state of degradation.

IT is principally, then, in its remote consequences that we must consider this annihilation of domestic slavery.

THESE barbarian nations had all nearly the same form of government, consisting of a common chief, called *king*, who, with a council, pronounced judgments, and gave decisions, that it would have been dangerous to delay; of an assembly of private chiefs, consulted upon all resolutions of a

certain importance; and lastly, of an assembly of the people, in which measures interesting to the general community were deliberated. The principal difference was the greater or less degree of authority affixed to these three powers, which were not distinguished by the nature of their functions, but by the rank of affairs confided to them; and, above all, by the value of that rank in the minds of the majority of the citizens.

AMONG the agricultural tribes of these barbarians, and particularly those who had already formed an establishment on a foreign territory, these constitutions had assumed a more regular and more solid form, than among pastoral tribes. The individuals of such tribes also were dispersed over the soil, and did not live, like the others, in encampment more or less numerous. The king therefore had not always an army assembled about his person; and despotism could not so immediately follow upon conquest, as in the revolution of Asia.

THE *victorious* nation was thus enslaved. At the same time, these conquerors kept the towns, but without inhabiting them. As they were not held in awe by an armed force, no permanent force of that kind existing, they acquired a sort of power; and this power was a point of support for the liberty of the *conquered* nation.

ITALY was often invaded by the barbarians; but they were able to form there no durable establishment, from its wealth continually exciting the avarice of new conquerors, and because the Greeks entertained the hope, for a considerable period, of uniting it to the empire. It was never, by any people, entirely or permanently subdued. The Latin language, which was there the only language of the people, degenerated more slowly; and ignorance also was less complete, superstition less senseless, than in the other parts of the west.

ROME, which acknowledged masters only to change them, maintained a sort of independence. This city was the residence of the chief of the religion. Accordingly, while in the east, subjected to a single prince, the clergy, sometimes governing, and sometimes conspiring against the emperors, supported despotism, though resisting the despot, and preferred availing themselves of the whole power of an absolute master, to disputing a part of it; we see them, on the contrary, in the west, united under a common head, erecting a power, the rival of that of kings, and forming in these divided states a sort of distinct and independent monarchy.

WE shall exhibit this ruling city trying the experiment upon the universe of a new species of chains; its pontiffs subjugating ignorant credulity by acts grossly forged; mixing religion with all the transactions of civil life, to render them more subservient to their avarice or their pride; punishing by anathemas, from which the people shrunk with horror, the least opposition to their laws, the smallest resistance of their absurd pretensions; having an army of monks in every state, ready, by their impostures, to enhance the terrors of superstition, thereby to feed the flame of fanaticism; depriving nations of their worship and ceremonies upon which depended their religious hopes, to kindle civil war; disturbing all, to govern all; commanding in the name of God, treason and perfidy, assassination and parricide; making kings and warriors now the instruments, and now the victims of their revenge; disposing of force, but never possessing it; terrible to their enemies, but trembling before their own defenders; omnipotent to the very extremities of Europe, yet insulted with impunity at the foot even of their altars; finding in hea-

ven the point upon which to fix the lever for moving the world, but without discovering on earth the regulator that is to direct and continue its motion at their will; in short, erecting a Colossus, but with legs of clay, that, after first oppressing Europe, is afterwards to weary it, for a long period, with the weight of its ruins and scattered fragments.

CONQUEST had introduced into the west a tumultuous anarchy, in which the people groaned under the triple tyranny of kings, leaders of armies, and priests; but this anarchy carried in its womb the seed of liberty. In this portion of Europe must be comprehended the countries into which the Romans had not penetrated. Partaking of the general commotion, conquering and conquered in turn, having the same origin, the same manners as the conquerors of the empire, these people were confounded with them in the common mass. Their political state must have experienced the same alterations, and followed a similar route.

WE shall give a sketch of the revolutions of this feudal anarchy: a name that may furnish an idea of its character.

THEIR legislation was incoherent and barbarous. If we find in its records many laws apparently mild, this mildness was nothing else than an unjust and privileged impunity. Meanwhile we trace among them some institutions of a true temper, which, though as being intended to consecrate the rights of the oppressor, were an additional outrage to the rights of men, yet tended to preserve some feeble idea of these last, and were destined one day to serve as an index to their recognition and restoration.

IN this legislation two singular customs are observable, characteristic at once both of the infancy of nations, and the ignorance of the rude ages..... A criminal might purchase exemption from punishment by means of a sum of money fixed by law, which estimated the lives of men according to their dignity or their birth. Crimes were not considered as a violation of the security and rights of citizens, which the dread of punishment was to prevent, but as an outrage committed on an individual, which himself or his family might avenge, if they pleased, but of which the law offered a more advantageous reparation. Men had so little notion of ascertaining the proofs by which a fact might be substantiated, that it was thought a more simple mode of proceeding to request of Heaven a miracle, whenever the question was to discriminate between guilt and innocence ; and the success of a superstitious experiment, or the chance event of a combat, were regarded as the surest means of detecting falshood and arriving at the truth.

WITH men who made no distinction between independence and liberty, the quarrels arising among those who ruled over a portion, however small, of the territory, must degenerate into private wars ; and these wars extending from canton to canton, from village to village, habitually delivered up the whole surface of each country to all those horrors which, even in great invasions, are but transient, and in general wars desolate only the frontiers.

WHENEVER tyranny aims at reducing the mass of a people to the will of one of its portions, the prejudices and ignorance of the victims are counted among the means of effecting it ; it endeavors to compensate, by the compression and activity of a smaller force for the superiority of real force,

which, one might suppose, cannot fail to belong, at all times, to the majority of numbers. But the principal foundation of its hope, which however it can seldom attain, is that of establishing between the masters and slaves a real difference, which shall in a manner render nature herself an accomplice in the guilt of political inequality.

SUCH was, in remote periods, the art of the Eastern priests, who were at once kings, pontiffs, judges, astronomers, surveyors, artists and physicians. But what they owed to the exclusive possession of intellectual powers, the grosser tyrants of our weak progenitors obtained by their institutions and their war-like habits. Clothed with an impenetrable armour, fighting only upon horses as invulnerable as themselves, acquiring, by dint of a long and painful discipline, the necessary strength and address for guiding and governing them, they might oppress with this impunity and murder without risk, an individual of the commonalty, too poor to purchase these expensive accoutrements, and whose youth, necessarily occupied by useful labors, could not have been devoted to military exercises.

THUS the tyranny of the few acquired, by the practice of this mode of fighting, a real superiority of force, which must have excluded all idea of resistance, and which rendered for a long time fruitless even the efforts of despair. Thus the equality of nature disappeared before this factitious inequality of strength.

THE morality of this period, which it was the province of the priests alone to inculcate, comprehended those universal principles which no sect has overlooked : but it gave birth to a multitude of duties purely religious, and of imaginary sins..... These duties were more strongly enforced than

those of nature ; and actions indifferent, lawful, and even virtuous, were censured and punished with greater severity than actual crimes. Meanwhile a momentary repentance, consecrated by the absolution of a priest, opened the gates of heaven to the wicked ; and donations to the church, with the observance of certain practices flattering to its pride, sufficed to atone for a life crowded with iniquity. Nor was this all : absolutions were formed into a regular tariff. Care was taken to include in the catalogue of sins, all the degrees of human infirmity, from simple desires, from the most innocent indulgences of love, to the refinements and excesses of the most intemperate debauchery..... This was a frailty from which, it was well known, few were able to escape ; and was accordingly one of the most productive branches of the sacerdotal commerce. There was even a hell of a limited duration invented, which priests had the power of abridging, and from which they could grant dispensations ; a favor which they first obliged the living to purchase, and afterwards the relations or friends of the deceased. They sold so much land in heaven for an equal quantity of land upon earth ; and they had the extreme modesty to ask nothing to boot.

THE manners of this epoch were unfortunately worthy of a system so pregnant with corruption, so rootedly depraved. Their nature may be learned from the progress of this very system itself ; from the monks, sometimes inventing old miracles, sometimes fabricating new ones, and nourishing with prodigies and fables the stupid ignorance of the people, whom they deceived in order to rob them ; from the doctors of the church, employing the little imagination they possessed in enriching their creed with farther absurdities, and exceeding, if

possible, those which had been transmitted to them ; from the priests, obliging princes to consign to the flames, not only the men who presumed either to doubt any of their dogmas, or investigate their impostures, or blush for their crimes, but those who should depart for an instant from their blind obedience ; and even theologians themselves, when they indulged in dreams different from those of the umpires of the church, enjoying most influence and controul. Such, at this period, are the only traits which the manners of the West of Europe can furnish to the picture of the human species.

IN the East, united under a single despot, we shall observe a slower decline accompanying the gradual debility of the empire : the ignorance and depravity of every age advancing a few degrees above the ignorance and depravity of the preceding one ; while riches diminish, the frontiers ally themselves more frequent, and tyranny grows more dastardly and more cruel.

IN following the history of this empire, in reading the books that each age has produced, the most superficial and least attentive observer cannot avoid being struck with the resemblance we have mentioned.

THE people there indulged themselves more frequently in theological disputes. These accordingly occupy a more considerable portion of its history, have a greater influence upon political events, and the dreams of priests acquire a subtlety which the jealousy of the West could as yet not attain.... Religious intolerance was equally oppressive in both quarters of Europe ; but, in the country we are considering, its aspect was less ferocious.

MEANWHILE the works of Photius evince that a taste for rational study was not extinct. A few emperors, princes, and even some female sove-

reigns, are found seeking laurels out of the boundaries of theological controversy, and deigning to cultivate human learning.

THE Roman legislation was but slowly corrupted by that mixture of bad laws which avarice and tyranny dictated to the emperors, or which superstition extorted from their weakness. The Greek language lost its purity and character; but it preserved its richness, its forms and its grammar; and the inhabitants of Constantinople could still read Homer and Sophocles, Thucydides and Plato..... Anthemius explained the construction of the burning glasses of Archimedes, which Proclus employed with success in the defence of the capital. Upon the fall of the empire, this city contained some literary characters, who took refuge in Italy, and whose learning was useful to the progress of knowledge. Thus, even at this period, the east had not arrived at the last stage of ignorance; but at the same time it furnished no hope of a revival of letters. It became the prey of barbarians; the feeble remains of intellectual cultivation disappeared; and the genius of Greece still waits the hand of a deliverer.

AT the extremities of Asia, and upon the confines of Africa, there existed a people, who, from its local situation and its courage, escaped the conquests of the Persians, of Alexander, and of the Romans. Of its numerous tribes, some derived their subsistence from agriculture, while others observed a pastoral life; all pursued commerce, and some addicted themselves to robbery. Having a similarity of origin, of language and of religious habits, they formed a great nation, the different parts of which, however, were held together by no political tie. Suddenly there started up

among them a man of an ardent enthusiasm and most profound policy, born with the talents of a poet, as well as those of a warrior. This man conceived the bold project of uniting the Arabian tribes into one body, and he had the courage to execute it. To succeed in imposing a chief upon a nation hitherto invincible, he began with erecting upon the ruins of the ancient worship, a religion more refined. At once legislator, prophet, priest, judge, and general of the army, he was in possession of all the means of subjugating the mind: and he knew how to employ them with address, but at the same time with comprehension and dignity.

HE promulgated a mass of fables, which he pretended to have received from heaven; but he also gained battles. Devotion and the pleasures of love divided his leisure. After enjoying for twenty years a power without bounds, and of which there exists no other example, he announced publicly, that, if he had committed any act of injustice, he was ready to make reparation. All were silent: one woman only had the boldness to claim a small sum of money. He died; and the enthusiasm which he communicated to his people will be seen to change the face of three quarters of the globe.

THE manners of the Arabians were mild and dignified; they admired and cultivated poetry: and when they reigned over the finest countries of Asia, and time had cooled the fever of fanaticism, a taste for literature and the sciences mixed with their zeal for the propagation of religion, and abated their ardour for conquests.

THEY studied Aristotle, whose works they translated. They cultivated astronomy, optics, all the branches of medicine, and enriched the scien-

ces with some new truths. To them we owe the general application of algebra, which was confined among the Greeks to a single class of questions.... If the chimerical pursuit of a secret for the transmutation of metals, and a draught for the perpetuating of life degraded their chymical researches, they were the restorers, or more properly speaking the inventors, of this science, which had hitherto been confounded with medicine and the study of the processes of the arts. Among them it appeared for the first time in its simple form, a strict analysis of bodies for the purpose of ascertaining their elements, a theory of the combinations of matter and the laws to which those combinations are subjected.

THE sciences were free, and to that freedom owed their being able to revive some sparks of the Grecian genius; but the people were subjected to the unmitigated despotism of religion. Accordingly this light shone for a few moments only to give place to a thicker darkness; and these labors the Arabs would have been lost to the human race, if they had not served to prepare that more durable restoration, of which the west will presently exhibit to us the picture.

WE thus see, for the second time, genius abandoning nations whom it had enlightened; but it was in this, as in the preceding instance, from before tyranny and superstition that it was obliged to disappear. Born in Greece, by the side of liberty, it was neither able to arrest the fall of that country, nor defend reason against the prejudices of the people already degraded by slavery. Born among the Arabs, in the midst of despotism, and as it were, in the cradle of a fanatical religion, it has only, like the generous and brilliant character of that people, furnished a transient exception to the

general laws of nature, that condemn to brutality and ignorance enslaved and superstitious nations.

BUT this second example ought not to terrify us respecting the future ; it should operate only as a warning upon our contemporaries not to neglect any means of preserving and augmenting knowledge, if they wish either to become or to remain free ; and to maintain their freedom, if they would not lose the advantages which knowledge has procured them.

To the account of the labours of the Arabs, I shall suggest the outlines of a sudden rise and precipitate fall of the nation, which, after reigning from the borders of the Atlantic ocean to the banks of the Indus, driven by the barbarians from the greater part of its conquests, retaining the rest only to exhibit therein the shocking spectacle of a people degenerated to the lowest state of servitude, corruption and wretchedness, still occupies its ancient country, where it has preserved its manners, its spirit and its character, and learned to regain and defend its former independence.

I SHALL add that the religion of Mahomet, the most simple in its dogmas, the least absurd in its practices, above all others tolerant in its principles, seems to have condemned to an early slavery, to an incurable stupidity, all that vast portion of the earth in which it has extended its empire ; while we are about to see the genius of science and liberty blaze forth anew under superstitions more absurd, and in the midst of the most barbarous intolerance. China exhibits a similar phenomenon, though the effects of his stupefying poison have been less fatal.

SEVENTH EPOCH.

FROM THE FIRST PROGRESS OF THE SCIENCES
 ABOUT THE PERIOD OF THEIR REVIVAL IN
 THE WEST, TO THE INVENTION OF THE
 ART OF PRINTING.

A VARIETY of circumstances have concurred to restore by degrees that energy to the human mind, which from chains so degrading and so heavy, one might have supposed was crushed forever.

THE intolerance of priests, their eagerness to grasp at political power, their abominable avarice, their dissolute manners, rendered more disgusting by their hypocrisy, excited against them every honest heart, every unbiassed understanding, and every courageous character. It was impossible not to be struck with the contradictions between their dogmas, maxims and conduct, and those of the evangelists, from which their faith and system of morals had originated, and which they had been unable totally to conceal from the knowledge of the people.

ACCORDINGLY, powerful outcries were raised against them. In the centre of France whole provinces united for the adoption of a more simple doctrine, a purer system of christianity, in which, subjected only to the worship of a single divinity,

man was permitted to judge from his own reason, of what that divinity had condescended to reveal in the books said to have emanated from him.

FANATIC armies conducted by ambitious chiefs, laid waste the provinces. Executioners, under the guidance of legates and priests, put to death those whom the soldiers had spared. A tribunal of monks was established, with powers of condemning to the stake whoever should be suspected of making use of his reason.

MEANWHILE they could not prevent a spirit of freedom and enquiry from making a silent and furtive progress. Crushed in one country, in which it had the temerity to shew itself, in which, more than once, intolerant hypocrisy kindled the most sanguinary wars, it started up, or spread secretly in another. It is seen at every interval, till the period, when, aided by the invention of the press, it gained sufficient power to rescue a portion of Europe from the yoke of the court of Rome.

EVEN already there existed a class of men, who freed from the inglorious bondage of superstition, contented themselves with secretly indulging their contempt, or who at most went no farther than to cast upon it, fortuitously as it were, some traits of a ridicule, which was by so much the more striking on account of the uniform respect with which they took care to clothe it. The pleasantry of the writer obtained favor for the boldnesses of his pen..... They were scattered with moderation through works destined for the amusement of men of rank or of letters, and which never reached the mass of the people; for which reason they did not excite the resentment of the bigots.

FREDERIC the second was suspected of being what our priests of the eighteenth century have since denominated a *philosopher*. He was accused

by the Pope, before all the nations of Europe, of having treated the religions of Moses, Jesus, and Mahomet, as political fables. To his chancellor, Pierre des Vignes, was attributed the imaginary book of the Three Impostors, which never had any existence but in the calumnies of some, or the ingenious sportiveness of others, but of which the very title announced the existence of an opinion, the natural result of an examination of these three creeds, which, derived from the same source, were only a corruption of a less impure worship rendered by the most remote nations of antiquity to the universal soul of the world.

OUR collections of traditional tales, and the *Decameron* of Bocace, are full of traits characteristic of this freedom of thought, this contempt of prejudices, this inclination to make them the subject of secret and acrimonious derision.

THUS we are furnished in this epoch, at one and the same period, with tranquil satirists of all degrees of superstition, and enthusiastical reformers of its grossest abuses; and the history of these obscure invectives, these protests in favor of the rights of reason, may be almost connected with that of the most modern disciples of the school of Alexandria.

WE shall enquire if, when philosophical proselytism was attended with such peril, secret societies were not formed, whose object was to perpetuate, to spread silently and without risk, among some disciples and adepts, a few simple truths which might operate as a preservative against prevailing prejudices.

WE shall examine whether we ought not to rank in the number of such societies that celebrated order, which popes and kings conspired against

with such meanness, and destroyed with so much barbarity.

PRIESTS, either for self-defence, or to invent pretexts by which to cover their usurpation over the secular power, and to improve themselves in the art of forging passages of scripture, were under the necessity of applying themselves to study..... Kings, on the other hand, to conduct with less disadvantage this war, in which the claims are made to rest upon authority and precedent, patronized schools, that might furnish civilians, of whom they stood in need, to be on an equality with the enemy.

IN these disputes between the clergy and the governments, between the clergy of each country and the supreme head of the church, those of more honest minds, and of a more frank and liberal character, vindicated the cause of men against that of priests, the cause of the national clergy against the despotism of the foreign chief. They attacked abuses and usurpations, of which they attempted to unveil the origin. To us this boldness scarcely appears at present superior to servile timidity; we smile at seeing such a profusion of labor employed to prove what good sense alone was competent to have taught; but the truths to which I refer, at that time new, frequently decided the fate of a people: these men fought them with an independent mind; they defended them with firmness; and to their influence is it to be ascribed that human reason began to recover the recollection of its rights and its liberty.

IN the quarrels that took place between the kings and the nobles, the kings secured the support of the principal towns, either by granting privileges, or by restoring some of the natural rights of man; they endeavored, by means of emancipati-

ons, to increase the number of those who enjoyed the common right of citizens. And these men, re-born as it were to liberty, felt how much it behoved them, by the study of law and of history, to acquire a fund of information, an authority of opinion, that might serve to counterbalance the military power the feudal tyranny.

THE rivalship that existed between the emperors and the popes prevented Italy from uniting under a single master, and preserved there a great number of independent societies. In these petty states, it was necessary to add the power of persuasion to that of force, and to employ negotiation as often as arms: and as this political war was founded, in reality, in a war of opinion, and as Italy had never absolutely lost its taste for study, this country may be considered, respecting Europe, as a seedplot of knowledge, irreconcilable indeed as yet, but which promised a speedy and vigorous increase.

IN fine, hurried on by religious enthusiasm, the western nations engaged in the conquest of places rendered holy, as it was said, by the miracles and death of Christ; and this zeal, at the same time that it was favorable to liberty, by weakening and impoverishing the nobles, extended the connection of the people of Europe with the Arabians, a connection which their mixtures with Spain had before formed, and their commerce with Pisa, Genoa, and Venice cemented. Their language was studied, their books were read, part of their discoveries was acquired; and if the Europeans did not soar above the point in which the sciences had been left by the Arabians, they at least felt the ambition of rivaling them.

THESE wars, undertaken with superstitious views, served to destroy superstition. The spec-

tacle of such a multitude of religions excited at length in men of sense a total indifference for creeds, alike impotent in refining the passions, and curing the vices of mankind; a uniform contempt for that attachment, equally sincere, equally obstinate, of sectaries, to opinions contradictory to each other.

REPUBLICS were formed in Italy, of which some were imitations of the Greek republics, while others attempted to reconcile the servitude of a subject people with the liberty and democratic equality of a sovereign one. In Germany, in the north, some towns, obtaining almost entire independence, were governed by their own laws. In certain parts of Switzerland, the people threw off their chains both of feudal and of royal power..... In almost all the great states imperfect constitutions sprung up, in which the authority of raising subsidies, and of making new laws, was divided sometimes between the king, the nobles, the clergy and the people, and sometimes between the king, the barons and the commons; in which the people, though not yet exempt from a state of humiliation, were at least secure from oppression; in which all that truly composed a nation were admitted to the right of defending its interests, and of being heard by those who had the regulation of its destiny. In England a celebrated act, solemnly sworn by the king, and great men of the realm, secured the rights of the barons, and some of the rights of men.

OTHER nations, provinces, and even cities, obtained also charters of a similar nature, but less celebrated, and not so strenuously defended. They are the origin of those declarations of rights, regarded at present by every enlightened mind as the basis of liberty; and of which the ancients neither had or could have an idea, because their

institutions were sullied by domestic slavery, because with them the right of citizenship was hereditary, or conferred by voluntary adoption, and because they never arrived at the knowledge of rights which are inherent in the species, and belong with a strict equality to all mankind.

IN France, England, and other great nations, the people appeared desirous of resuming their true rights; but blinded by the sense of oppression, rather than enlightened by reason, the only fruit of its efforts were outrages, that were soon expiated by acts of vengeance more barbarous, and particularly more unjust, and pillages accompanied with greater misery than either.

IN England the principles of Wickliffe, the reformer, had given rise to one of these commotions, carried on under the direction of some of his disciples, and which afforded a presage of attempts more systematic and better combined, that would be made by the people under other reformers, and in a more enlightened age.

THE discovery of a manuscript of the Justinian code, produced the rival of the study of jurisprudence and legislation, and served to render these less barbarous even among the people who knew how to derive profit from the discovery, without treating the code as of sacred obligation.

THE commerce of Pisa, Genoa, Florence, Venice, some cities of Belgia, and free towns of Germany, embraced the Mediterranean, the Baltic, and the coasts of the European ocean. The precious commodities of the Levant were sought by the merchants of those places in the ports of Egypt, and at the extremities of the Black sea.

POLITY, legislation, national economy, were not yet converted into sciences: the principles of them were neither enquired after, investigated, nor

developed ; but as the mind began to be enlightened by experience ; observations were collected tending to lead thereto, and men became versed in the interests that must cause the want of them to be felt.

ARISTOTLE was only known at first by a translation of his works made from the Arabic. His philosophy, persecuted in the beginning, soon gained foot in all the schools. It introduced there no new light, but it gave more regularity, more method to that art of reasoning which theological disputes had called into existence. This scholastic discipline did not lead to the discovery of the truth ; it did not even serve for the discussion and accurate valuation of its proofs, but it whetted the minds of men ; and the taste for subtle distinctions, the necessity of continually dividing and subdividing ideas, of seizing their nicest shades, and expressing them in new words, the apparatus which was in the first instance employed to embarrass one's enemy in a dispute or to escape from his toils, was the original source of that philosophical analysis to which we have since been so highly indebted for our intellectual progress.

To these disciplinarians we are indebted for the greater accuracy that may have been obtained respecting the Supreme Being and his attributes ; respecting the distinction between the first cause, and the universe which it is supposed to govern ; respecting the farther distinction between the mind and matter ; respecting the different senses that may be affixed to the word *liberty* ; respecting the meaning of the word *creation* ; respecting the manner of distinguishing from each other the different operations of the human mind, and of classing the ideas it forms of objects and their properties.

BUT this method could not fail to retard in the schools the advancement of the natural sciences.... Accordingly the whole picture of these sciences at this period will be found merely to comprehend a few anatomical researches; some obscure productions of chymistry, employed in the discovery of the grand secret alone; a slight application to geometry and algebra, that fell short of the discoveries of the Arabians, and did not even extend to a complete understanding of the works of the ancients; and lastly, some astronomical studies and calculations, confined to the formation and improvement of tables, and depraved by an absurd mixture of astrology..... Meanwhile the mechanical arts began to approach the degree of perfection which they had preserved in Asia. In the southern countries of Europe the culture of silk was introduced; windmills as well as paper-mills were established; and the art of measuring time surpassed the bounds which it had acquired either among the Ancients or the Arabians.

IN short, two important discoveries characterise this epoch. The property possessed by the loadstone, of pointing always to the same quarter of the heavens, a property known to the Chinese, and employed by them in steering their vessels, was also observed in Europe. The compass came into use, an instrument which gave activity to commerce, improved the art of navigation, suggested the idea of voyages to which we have since owed the knowledge of a new world, and enabled man to take a survey of the whole extent of the globe on which he is placed. A chymist, by mixing an inflammable matter with saltpetre, discovered the secret of that powder which has produced so unex-

pected a revolution in the art of war. Notwithstanding the terrible effect of fire arms, in dispersing an army, they have rendered war less murderous, and its combatants less brutal. Military expeditions are more expensive; wealth can balance force; even the most warlike people feel the necessity of providing and securing the means of combatting, by the acquisition of the riches of commerce and the arts. Polished nations have no longer any thing to apprehend from the blind courage of barbarian tribes. Great conquests, and the revolutions which follow, are become almost impossible.

THAT superiority which an armour of iron, which the art of conducting a horse almost invulnerable from his accoutrements, of managing the lance, the club or the sword, gave the nobility over the people, is completely done away; and the removal of this impediment to the liberty and real equality of mankind, is the result of an invention, that, on the first glance, seemed to threaten the total extirpation of the human race.

IN Italy, the language arrived almost at its perfection about the fourteenth century. The style of Dante is often grand, precise, energetic. Boccace is graceful, simple and elegant. The ingenious and tender Petrarch has not yet become obsolete. In this country, whose happy climate nearly resembles that of Greece, the models of antiquity were studied; attempts were made to transfuse into the new language some of their beauties, and to produce new beauties of a similar stamp. Already some productions gave reason to hope that roused by the view of ancient monuments, inspired by those mute but eloquent lessons, genius was about, for the second time, to embellish the exist-

ence of man, and provide for him those pure pleasures, the enjoyment of which is free to all, and becomes greater in proportion as it is participated.

THE rest of Europe followed at an humble distance; but a taste for letters and poetry began at least to give a polish to languages that were still in a state of almost barbarity.

THE same motives which had roused the minds of men from their long lethargy, must also have directed their exertions. Reason could not have been appealed to for the decision of questions, of which opposite interests had compelled the discussion. Religion, far from acknowledging its power, boasted of having subjected and humbled it.... Politics considered as just what had been consecrated by compact, by constant practice, and ancient customs.

No doubt was entertained that the rights of man were written in the book of nature, and that to consult any other would be to depart from and violate them. Meanwhile it was only in the sacred books, in respected authors, in the bulls of popes, in the rescripts of kings, in registers of old usages, and in the annals of the church, that maxims or examples were sought from which to infer those rights. The business was never to examine the intrinsic merits of a principle, but to interpret, to appreciate, to support or to annul by other texts those upon which it might be founded. A proposition was not adopted because it was true, but because it was written in this or that book, and had been embraced in such a country and such an age.

THUS the authority of men was every where substituted for that of reason: books were much

more studied than nature, and the opinions of antiquity obtained the preference over the phenomena of the universe. This bondage of the mind, in which men had not then the advantage of enlightened criticism, was still more detrimental to the progress of the human species, by corrupting the method of study, than by its immediate effects..... And the ancients were yet too far from being equalled, to think of correcting or surpassing them.

MANNERS preserved, during this epoch, their corruption and ferocity ; religious intollorance was even more active ; and civil discords, and the incessant wars of a crowd of petty sovereigns, succeeded the invasions of the barbarians, and the pest still more fatal, of sanguinary feuds. The gallantry indeed of the ministers and the troubadours, the institution of orders of chivalry, professing generosity and frankness, devoting themselves to the maintenance of religion, the relief of the oppressed, and the service of the fair, were calculated to infuse into manners more mildness, decorum, and dignity. But the change, confined to courts and castles, reached not to the bulk of the people..... There resulted from it a little more equality among the nobles, less perfidy and cruelty in their relations with each other ; but their contempt for the people, the insolence of their tyranny, their audacious robberies, continued the same ; and nations, oppressed as before, were as before ignorant, barbarous and corrupt.

THIS poetical and military gallantry, this chivalry, derived in great measure from the Arabians, whose natural generosity long resisted in Spain superstition and despotism, had doubtless their use : they diffused the seeds of humanity, which were destined in happier periods to exhibit

their fruit ; and it was the general character of this epoch, that it disposed the human mind for the revolution which the discovery of printing could not but introduce, and prepared the soil which the following ages were to ~~cover~~ with so rich and so abundant an harvest.

EIGHTH EPOCH.

FROM THE INVENTION OF PRINTING TO THE PERIOD WHEN THE SCIENCES AND PHILOSOPHY THREW OFF THE YOKE OF AUTHORITY.

THOSE who have reflected but superficially upon the march of the human mind in the discovery, whether of the truths of science, or of the processes of the arts, must be astonished that so long a period should elapse between the knowledge of the art of taking impressions of drawings, and the discovery of that of printing characters.

SOME engravers of plates had doubtless conceived this idea of the application of their art ; but they were more struck with the difficulty of executing it, than with the advantages of success : and it is fortunate that they did not comprehend it in all its extent ; since priests and kings would infallibly have united to stifle, from its birth, the enemy that was to unmask their hypocrisy, and hurl them from their thrones.

THE press multiplies indefinitely, and at a small expence, copies of any work. Those who can read are hence enabled to furnish themselves with books suitable to their taste and their wants ; and this facility of exercising the talent of reading, has increased and propagated the desire of learning it.

THESE multiplied copies, spreading themselves with greater rapidity, facts and discoveries not only

acquire a more extensive publicity, but acquire it also in a shorter space of time. Knowledge has become the object of an active and universal commerce.

PRINTERS were obliged to seek manuscripts, as we seek at present works of extraordinary genius. What was read before by a few individuals only, might now be perused by a whole people, and strike almost at the same instant, every man that understood the same language.

THE means are acquired of addressing remote and dispersed nations. A new species of tribune is established, from which are communicated impressions less lively, but at the same time more solid and profound; from which is exercised over the passions an empire less tyrannical, but over reason a power more certain and durable; where all the advantage is on the side of truth, since what the art may lose in point of seduction, is more than counterbalanced by the illumination it conveys..... A public opinion is formed, powerful by the number of those who share in it, energetic, because the motives that determine it, act upon all minds at once, though at considerable distances from each other. A tribunal is erected in favor of reason and justice, independent of all human power, from the penetration of which it is difficult to conceal any thing, from whose verdict there is no escape.

NEW inventions, the history of the first steps in the road to a discovery, the labors that prepare the way for it, the views that suggest the idea or give rise merely to the wish of pursuing it, these, communicating themselves with celerity, furnish every individual with the united means which the efforts of all have been able to create, and genius appears to have more than doubled its powers.

EVERY new error is resisted from its birth; frequently attacked before it has disseminated itself, it has not time to take root in the mind..... Those which, imbibed from infancy, are identified in a manner with the reason of every individual, and by the influence of hope or of terror endeared to the existence of weak understandings have been shaken, from this circumstance alone, that it is now impossible to prevent their discussion, impossible to conceal that they are capable of being examined and rejected, impossible they should withstand the progress of truths which, daily acquiring new light, must conclude at last with displaying all the absurdity of such errors.

IT is to the press we owe the possibility of spreading those publications which the emergency of the moment, or the transient fluctuations of opinion, may require, and of interesting thereby in any question, treated in a single point of view, whole communities of men reading and understanding the same language.

ALL those means which render the progress of the human mind more easy, more rapid, more certain, are also the benefits of the press. Without the instrumentality of this art, such books could not have been multiplied as are adapted to every class of readers, and every degree of instruction. To the press we owe those continued discussions which alone can enlighten doubtful questions, and fix upon an immovable basis, truths too abstract, too subtile, too remote from the prejudices of the people or the common opinion of the learned, not to be soon forgotten and lost. To the press we owe those books purely elementary, dictionaries, works in which are collected, with all their details, a multitude of facts, observations and experiments, in which all their proofs are developed, all their

difficulties investigated. To the press we owe those valuable compilations, containing sometimes all that has been discovered, written, thought, upon a particular branch of science, and sometimes the result of the annual labors of all the literati of a country. To the press we owe those tables, those catalogues, those pictures of every kind, of which some exhibit a view of introductions which the mind could only have acquired by the most tedious operations; others present at will the fact, the discovery, the number, the method, the object which we are desirous of ascertaining; while others again furnish, in a more commodious form and a more arranged order, the materials from which genius may fashion and derive new truths.

To these benefits we shall have occasion to add others, when we proceed to analyse the effects that have arisen from the substitution of the vernacular tongue of each country, in the room of the almost exclusive application, which had preceded, so far as relates to the sciences, of one language, the common medium of communication between the learned of all nations.

In short, is it not the press that has freed the instruction of the people from every political and religious chain? In vain might either despotism invade our schools; in vain might it attempt, by rigid institutions, invariably to fix what truths shall be preserved in them, what errors inculcated on the mind; in vain might chairs, consecrated to the moral instruction of the people, and the tuition of youth in philosophy and the sciences, be obliged to deliver no doctrines but such as are favorable to this double tyranny: the press can diffuse at the same time a pure and independent light. That instruction which is to be acquired from books in silence and solitude, can never be universally cor-

rupted : a single corner of the earth free to commit their leaves to the press, would be a sufficient security. How amidst that variety of productions, amidst that multitude of existing copies of the same book, amidst impressions continually renewed, will it be possible to shut so closely all the doors of truth, as to leave no opening, no crack or crevice by which it may enter? If it was difficult even when the business was to destroy a few copies only of a manuscript, to prevent for ever its revival, when it was sufficient to proscribe a truth, or opinion, for a certain number of years to devote it to eternal oblivion, is not this difficulty now rendered impossible, when it would require a vigilance incessantly occupied, and an activity that should never slumber? And even should success attend the superstition of those too palpable truths, that wound directly the interests of inquisitors, how are others to be prevented from penetrating and spreading, which include those proscribed truths without suffering them to be perceived, which prepare the way, and must one day infallibly lead to them? Could it be done without obliging the personages in question to throw off that mask of hypocrisy, the fall of which would prove no less fatal than truth itself to the reign of error? We shall accordingly see reason triumphing over these vain efforts : we shall see her in this war, a war continually reviving, and frequently cruel, successful alike against violence and stratagem ; braving the flames, and resisting seduction ; crushing in turn, under its mighty hand, both the fanatical hypocrisy which requires for its dogmas a sincere adoration, and the political hypocrisy, imploring on its knees that it may be allowed to enjoy in peace the profit of errors in which, if you will take its word, it is no less advantageous.

to the people than to itself, that they should for ever be plunged.

THE invention of the art of printing nearly coincides with two other events, of which one has exercised an immediate influence on the progress of knowledge, while the influence of the other on the destiny of the whole human species can never cease but with the species itself.

I REFER to the taking of Constantinople by the Turks, and the discovery both of the new world, and of the route which has opened to Europe a direct communication with the eastern parts of Africa and Asia.

THE Greek literati, flying from the sovereignty of the Tartars, sought an asylum in Italy..... They acquired the ability of reading, in their original language, the poets, orators, historians, philosophers, and antiquarians of Greece. They first furnished manuscripts, and soon after editions of the works of these authors. The veneration of the studious was no longer confined to what they agreed in calling the doctrine of Aristotle. They studied this doctrine in his own writings. They ventured to investigate and oppose it. They contrasted him with Plato: and it was advancing a step towards throwing off the yoke, to acknowledge in themselves the right of choosing a master.

THE perusal of Euclid, Archimedes, Diphantus, and Aristotle's philosophical book upon animals, rekindled the genius of natural philosophy and of geometry; while the anti-christian opinions of philosophers awakened ideas that were almost extinct of the ancient prerogatives of human reason.

INTREPID individuals, instigated by the love of glory and a passion for discoveries, had extended for Europe the bounds of the universe, had exhi-

bitted a new heaven, and opened to its view an unknown earth. Gama had penetrated into India, after having pursued with indefatigable patience the immense extent of the African coasts; while Columbus, consigning himself to the waves of the Atlantic ocean, had reached that country, hitherto unknown, extending from the west of Europe to the east of Asia.

IF this passion, whose restless activity, embracing at that period every object, gave promise of advantages highly important to the progress of the human species, if a noble curiosity had animated the heroes of navigation, a mean and cruel avarice, a stupid and brutal fanaticism governed the kings and robbers who were to reap the profits of their labour. The unfortunate beings who inhabited these new countries were not treated as men, because they were not christians. This prejudice, more degrading to the tyrants than the victims, stifled all sense of remorse, and abandoned, without controul, to their inextinguishable thirst for gold and for blood, those greedy and unfeeling men that Europe disgorged from her bosom. The bones of five millions of human beings have covered the wretched countries to which the Spaniards and Portuguese transported their avarice, their superstition, and their fury. These bones will plead to everlasting ages against the doctrine of the political utility of religions, which is still able to find its apologists in the world.

IT is in this epoch only the progress of the human mind, that man has arrived at the knowledge of the globe which he inhabits; that he has been able to study, in all its countries, the species to which he belongs, modified by the continued influence of natural causes, or social institutions; that he has had an opportunity of observing the produc-

tions of the earth, or of the sea, in all temperatures and climates. And accordingly, among the happy consequences of the discoveries in question, may be included the resources of every kind which those productions afford to mankind, and which, so far from being exhausted, men have yet no idea of their extent; the truths which the knowledge of those objects may have added to the sciences, or the long received errors that may thereby have been destroyed; the commercial activity that has given new life to industry and navigation, and, by a necessary chain of connection, to all the arts and all the sciences: and lastly, the force that free nations have acquired from this activity by which to resist tyrants, and subjected nations to break their chains, and free themselves at least from feudal despotism. But these advantages will never expiate what the discoveries have cost to suffering humanity, till the moment when Europe, abjuring the sordid and oppressive system of commercial monopoly, shall acknowledge that men of other climates, equals and brothers by the will of nature, have never been formed to nourish the pride and avarice of a few privileged nations; till, better informed respecting its true interests, it shall invite all the people of the earth to participate in its independence, its liberty, and its illumination. Unfortunately, we have yet to learn whether this revolution will be the honorable fruit of the advancement of philosophy, or only, as we have hitherto seen, the shameful consequence of national jealousy, and the enormous excesses of tyranny.

TILL the present epoch the crimes of the priesthood had escaped with impunity. The cries of oppressed humanity, of violated reason, had been stifled in flames and in blood. The spirit which dic-

tated those cries was next extinct: but the silence occasioned by the operation of terror emboldened the priesthood to farther outrages. At last, the scandal of farming to the monks the privilege of selling in taverns and public places the expiation of sins, occasioned a new explosion. Luther, holding in one hand the sacred books, exposed with the other the right which the Pope had arrogated to himself of absolving crimes and selling pardons; the insolent despotism which he exercised over the bishops, for a long time his equals; the fraternal supper of the primitive christians, converted, under the name of *mass*, into a species of magical incantation and an object of commerce; priests condemned to the crime of irrevocable celibacy; the same cruel and scandalous law extended to the monks and nuns with which pontifical ambition had inundated and polluted the church; all the secrets of the laity consigned, by means of confession, to the intrigues and the passions of priests; God himself, in short, scarcely retaining a feeble share in the adorations bestowed in profusion upon bread, men, bones and statues.

LUTHER announced to the astonished multitude, that these disgusting institutions formed no part of christianity, but on the contrary were its corruption and shame; and that, to be faithful to the religion of Jesus, it was first of all necessary to abjure that of his priests. He employed equally the arms of logic and erudition, and the no less powerful weapon of ridicule. He wrote at once in German and in Latin. It was no longer as in the days of the Abigenses, or of John Huss, whose doctrine, unknown beyond the walls of their churches, was so easily calumniated. The German books of the new apostles penetrated at the same time into every village of the empire, while their Latin

productions roused all Europe from the shameful sleep into which superstition had plunged it. Those whose reason had outstripped the reformers, but whom fear had retained in silence; those who were tormented with secret doubts, but which they trembled to avow even to their consciences; those who, more simple, were unacquainted with all the extent of theological absurdities; who, having never reflected upon questions of controversy, were astonished to learn that they had the power of chusing between different opinions; entered eagerly into these discussions, upon which they conceived depended at once their temporal interests and their eternal felicity.

ALL the christian part of Europe, from Sweden to Italy, and from Hungary to Spain, was in an instant covered with the partisans of the new doctrines; and the reformation would have delivered from the yoke of Rome all the nations that inhabited it, if the mistaken policy of certain princes had not relieved that very sacerdotal sceptre which had so frequently fallen upon the heads of kings.

THIS policy, which their successors unhappily have yet not abjured, was to ruin their states by seeking to add to them, and to measure their power by the extent of their territory, rather than by the number of their subjects.

THUS, Charles the fifth and Francis the first, while contending for Italy, sacrificed to the interest of keeping well with the pope, that superior interest of profiting by the advantages offered by the reformation to every country that should have the wisdom to adopt it.

PERCEIVING that the princes of the empire were favorable to opinions calculated to augment their power and their wealth, the emperor became

the partisan and supporter of the old abuses, actuated by the hope that a religious war would furnish an opportunity of invading their states, and destroying their independence; while Francis imagined that, by burning the protestants, and protecting at the same time their leaders in Germany, he should preserve the friendship of the pope, without losing his valuable allies.

BUT this was not their only motive. Despotism has also its instinct; and that instinct suggested to these kings, that men, after subjecting religious prejudices to the examination of reason, would soon extend their enquiries to prejudices of another sort: that, enlightened upon the usurpation of popes, they might wish at last to be equally enlightened upon those of princes; and that the reform of ecclesiastical abuses, beneficial as it was to royal power, might involve the reform of abuses, still more oppressive, upon which that power was founded. Accordingly, no king of any considerable nation favored voluntarily the party of the reformers. Henry the eighth, terrified at the pontifical anathema, joined in the persecution against them. Edward and Elizabeth, unable to embrace popery without pronouncing themselves usurpers, established in England the faith and worship that approached nearest to it. The protestant monarchs of Great Britain have indeed uniformly favoured the catholic religion, whenever it has ceased to threaten them with a pretender to the crown.

IN Sweden and Denmark, the establishment of the religion of Luther was considered by their kings only as a necessary precaution to secure the expulsion of the catholic tyrant, to whose despotism they succeeded; and in the Prussian monarchy, founded by a philosophical prince, we already

perceive his successor unable to disguise his secret attachment to this religion, so dear to the hearts of sovereigns.

RELIGIOUS intolerance was common to every sect, and communicated itself to all the governments. The papists persecuted the reformed communions; while these, pronouncing anathemas against each other, joined at the same time against the anti-trinitarians, who, more consistent in their conduct, had tried every doctrine, if not by the touchstone of reason, at least by that of an enlightened criticism, and who did not see the necessity of freeing themselves from one species of absurdity, to fall into others equally disgusting.

THIS intolerance served the cause of popery. For a long time there had existed in Europe, and especially in Italy, a class of men who, rejecting every kind of superstition, indifferent alike to all modes of worship, governed only by reason, regarded religion as of human invention, at which one might laugh in secret, but towards which prudence and policy dictated an outward respect.

THIS free-thinking assumed afterwards superior courage; and, while in the schools the philosophy of Aristotle, imperfectly understood, had been employed to improve the subtleties of theology, and render ingenious what would naturally have borne the features of absurdity, some men of learning established upon his true doctrines a system destructive of every religious idea, in which the human soul was considered only as a faculty that vanished with life, and in which no other providence, no other ruler of the world was admitted than the necessary laws of nature. This system was combatted by the Platonists, whose sentiments resembling what has since been called by the name:

of deism, were more terrifying still to sacerdotal orthodoxy.

BUT the operation of punishment soon put a stop to this impolitic boldness. Italy and France were polluted with the blood of these martyrs to the freedom of thought. All sects, all governments, every species of authority, inimical as they were to each other in every point else, seemed to be of accord in granting no quarter to the exercise of reason. It was necessary to cover it with a veil, which, hiding it from the observation of tyrants might still permit it to be seen by the eye of philosophy.

ACCORDINGLY the most timid caution was observed respecting this secret doctrine, which had never failed of numerous adherents. It had been particularly propagated among the heads of governments, as well as among those of the church; and, about the period of the reformation, the principles of religious Machiavelism became the only creed of princes, of ministers, and of pontiffs. These opinions had even corrupted philosophy. What code of morals indeed was to be expected from a system of which one of the principles is, that it is necessary to support the morality of the people by false pretences; that men of enlightened minds have a right to deceive them, provided they impose only useful truths, and to retain them in chains from which they have themselves contrived to escape.

IF the natural equality of mankind, the principal basis of its rights, be the foundation of all genuine morality, what could it hope from a philosophy, of which an open contempt of this equality and these rights is a distinguishing feature? This same philosophy has contributed no doubt to the advancement of reason, whose reign it silently pre-

pared; but so long as it was the only philosophy, its sole effect was to substitute hypocrisy in the place of fanaticism, and to corrupt, at the same time that it raised above prejudices, those who presided in the destiny of states.

PHILOSOPHERS truly enlightened, strangers to ambition, who contented themselves with undeceiving men gradually and with caution, but without suffering themselves at the same time to confirm them in their errors, these philosophers would naturally have been inclined to embrace the reformation: but, deterred by the intolerance that every where displayed itself the majority were of opinion that they ought not to expose themselves to the inconveniences of change, when by so doing, they would still be subjected to similar restraint.... As they must have continued to shew a respect for absurdities which they had already rejected, they saw no mighty advantage in having the number somewhat diminished; they were fearful also of exposing themselves, by their abjuration, to the appearance of a voluntary hypocrisy; and thus, by persevering in their attachment to the old religion, they strengthened it with the authority of their reputation.

THE spirit which animated the reformers did not introduce a real freedom of sentiment. Each religion, in the country in which it prevailed, had no indulgence but for certain opinions. Meanwhile as the different creeds were opposed to each other, few opinions existed that had not been attacked or supported in some part of Europe. The new communions had beside been obliged to relax a little from their dogmatical rigour. They could not without the grossest contradiction, confine the right of examination within the pale of their own church, since upon this right was founded the legi-

timacy of their separation. If they refused to restore to reason its full liberty, they at least consented that its prison should be less confined: the chains were not broken, but they were rendered less burthensome and more permanent. In short, in those countries where a single religion had found it impracticable to oppress all the others, there was established what the insolence of the ruling sect called by the name of toleration, that is, a permission, granted by some men to other men, to believe what their reason adopts, to do what their conscience dictates to them, to pay to their common God the homage they think best calculated to please him: and in these countries the tolerated doctrines might then be vindicated with more or less freedom.

WE thus see making its appearance in Europe a sort of freedom of thought, not for men, but for christians; and, if we except France, for christians only does it any where exist to this day.

BUT this intolerance obliged human reason to seek the recovery of rights too long forgotten, or which rather had never been properly known and understood.

ASHAMED at seeing the people oppressed, in the very sanctuary of their conscience, by kings, the superstitious or political slaves of the priesthood, some generous individuals dared at length to investigate the foundations of their power; and they revealed this grand truth to the world: that liberty is a blessing which cannot be alienated; that no title, no convention in favor of tyranny, can bind a nation to a particular family; that magistrates, whatever may be their appellation, their functions, or their power, are the agents, not the masters, of the people; that the people have the right of withdrawing an authority originating in

themselves alone, whenever that authority shall be abused, or shall cease to be thought useful to the interests of the community: and lastly, that they have the right to punish, as well as to cashier their servants.

SUCH are the opinions which Althusius and Languet, and afterwards Needham and Harrington, boldly professed, and investigated thoroughly.

FROM deference to the age in which they lived, they too often build upon texts, authorities, and examples; and their opinions appear to have been the result of the strength of their minds, and dignity of their characters, rather than of an accurate analysis of the true principles of social order.

MEANWHILE other philosophers, more timid, contented themselves with establishing, between the people and kings, an exact reciprocity of duties and rights, and mutual obligation to preserve inviolate settled conventions. An hereditary magistrate might indeed be deposed or punished, but it was only upon his having infringed this sacred contract, which was not the less binding on his family. This doctrine, which sacrificed natural right, by bringing every thing under positive institution, was supported both by civilians and divines. It was favorable to powerful men, and to the projects of the ambitious, as it struck rather at the individual who might be invested with sovereignty, than at sovereignty itself. For this reason it was almost generally embraced by reformists, and adopted as a principle in political dissentions and revolutions.

HISTORY exhibits few steps of actual progress towards liberty during this epoch; but we see more order and efficacy in government, and in nations a stronger and particularly a more just sense of their rights. Laws are better combined; they ap-

pear less frequently to be the immature and shapeless production of circumstances and caprice ; they are the offspring of men of learning, if they cannot be said as yet to be the children of philosophy.

THE popular commotions and revolutions which agitated England, France and the republics of Italy, attracted the notice of philosophers to that branch of politics which consists in observing and predicting the effects that the constitution, laws and establishments of a country are likely to produce upon the liberty of the people, and the prosperity, strength, independence, and form of government of the state. Some, in imitation of Plato, as More, for instance, and Hobbes, deduced from general positions the plan of an entire system of social order, and exhibited the model towards which it was necessary in practice continually to approach. Others like Machiavel, sought in a profound investigation of historical facts, the rules by which were to be obtained the future mastery of nations.

THE science of political economy did not, in this epoch, exist. Princes estimated not the number of men, but of soldiers, in the state ; finance was the mere art of plundering the people, without driving them to the desperation that should end in revolt ; and governments paid no other attention to commerce but that of loading it with taxes, of restricting it by privileges, or of disputing for its monopoly.

THE nations of Europe, occupied by the common interests that should unite, or the opposite ones that they conceived ought to divide them, felt the necessity of observing certain rules of conduct which, independently of treaties, were to operate in their pacific intercourse ; while other rules, re-

spected even in the midst of war, were calculated to soften its ferocity, to diminish its ravages, and to prevent at least unproductive and unnecessary calamities. I refer to the science of the law of nations: but these laws unfortunately were sought, not in reason and nature, the only authorities that independent nations may acknowledge, but in established usages and opinions of antiquity. The rights of humanity, justice towards individuals, were less consulted, in this business, than the ambition, the pride, and the avarice of government.

IN this epoch we do not observe moralists interrogating the heart of man, analysing his faculties and his feelings, thereby to discover his nature, and the origin, law and sanction of his duties. On the contrary, we see them employing all the subtlety of the schools to discover, respecting actions the lawfulness of which is uncertain, the precise limit where innocence ends, and sin is to begin; to ascertain what authority has the proper degree of weight to justify the practice of any of these dubious sort of actions; to assist them in classing sins methodically, sometimes in genus and species, and sometimes according to the respective heinousness of their nature; and lastly, to mark those in particular of which the commission of one only is sufficient to merit eternal damnation.

THE science of morals, it is apparent, could not at that time have being, since priests alone enjoyed the privilege of being interpreters and judges. Meanwhile, as a skillful mechanic, by studying an uncouth machine, frequently derives from it the idea of a new one, less imperfect, and truly useful; so did these very subtleties lead to the discovery, or assist in ascertaining the degree of moral turpitude of actions or their motives, the order and limits of our duties, as well as the principles

that should determine our choice whenever these duties shall appear to clash.

THE reformation, by destroying, in the countries in which it was embraced, confession, indulgences, and monks, refined the principles of morality, and rendered even manners less corrupt. It freed them from sacerdotal expiations, that dangerous encouragement to vice, and from religious celibacy, the bane of every virtue, because the enemy of domestic virtues.

THIS epoch, more than all the rest, was blotted and disfigured with acts of atrocious cruelty. It was the epoch of religious massacres, holy wars, and the depopulation of the new world. There we see established, the slavery of ancient periods, but a slavery more barbarous, more productive of crimes against nature: and that mercantile avidity, trafficking with the blood of men, selling them like other commodities, having first purchased them by treason, robbery or murder, and dragging them from one hemisphere to be devoted in another amidst humiliation and outrages, to the tedious punishment of a lingering, a cruel, but infallible destruction.

AT the same time hypocrisy covers Europe with executions at the stake, and assassinations..... The monster, fanaticism, maddened by the wounds it had received, appears to redouble its fury, and hastens to burn its victims in heaps, fearful that reason might be approaching to deliver them from his hands.

MEANWHILE we may observe some of those mild but intrepid virtues making their appearance, which are the honor and consolation of humanity. History furnishes names which may be pronounced without a blush. A few unsullied and mighty minds, uniting superior talents to the dignity of

their characters, relieve, here and there, these scenes of perfidy, of corruption, and of carnage. The picture of the human race is still too dreary for the philosopher to contemplate it without extreme mortification; but he no longer despairs, since the dawn of brighter hopes is exhibited to his view.

THE march of the sciences is rapid and brilliant. The Algebraic language becomes generalized, simplified and perfected, or rather it is now only that it was truly formed. The first foundations of the general theory of equations are laid, the nature of the solutions which they give is ascertained, and those of the third and fourth degree are resolved.

THE ingenious invention of logarithms, as abridging the operations of arithmetic, facilitates the application of calculation to the various objects of nature and art, and thus extends the sphere of all those sciences in which a numerical process is one of the means of comparing the results of an hypothesis or theory with the actual phenomena, and thus arriving at a distinct knowledge of the laws of nature. In mathematics, in particular, the mere length and complication of the numerical process practically considered, bring us, upon certain occasions, to a term beyond which neither time, opportunity, nor even the stretch of our faculties, can carry us; this term, had it not been for the happy intervention of logarithms, would have also been the term beyond which science could never pass, or the efforts of the proudest genius proceed.

THE law of the descent of bodies was discovered by Galileo, from which he had the ingenuity to deduce the theory of motion uniformly accele-

rated, and to calculate the curve described by a body impelled into the air with a given velocity, and animated by a force constantly acting upon it in parallel directions.

COPERNICUS revived the true system of the world, so long buried in oblivion, destroyed, by the theory of apparent motions, what the senses had found so much difficulty in reconciling, and opposed the extreme simplicity of the real motions resulting from this system, to the complication, bordering upon absurdity, of the Ptolemean hypothesis. The motions of the planets were better understood; and by the genius of Kepler were discovered the forms of their orbits, and the eternal laws by which those orbits perform their evolutions.

GALILEO, applying to the astronomy the recent discovery of telescopes, which he carried to greater perfection, opened to the view of mankind a new firmament. The spots which he observed on the disk of the sun led him to the knowledge of its rotation, of which he ascertained the precise period, and the laws by which it was performed. He demonstrated the phases of Venus, and discovered the four satellites that surround and accompany Jupiter in his immense orbit.

HE also furnished an accurate mode of measuring time, by the vibrations of a pendulum.

THUS man owes to Galileo the first mathematical theory of a motion that is not at once uniform and rectilinear, as well as one of the mechanical laws of nature; while to Kepler he is indebted for the acquisition of one of those empirical laws, the discovery of which has the double advantage of leading to the knowledge of the mechanical law of which they express the result, and of supplying such degrees of this knowledge as man finds himself yet incapable of attaining.

THE discovery of the weight of the air, and of the circulation of the blood, distinguish the progress of experimental philosophy, born in the school of Galileo, and of anatomy, already too far advanced not to form a science distinct from that of medicine.

NATURAL history, and chymistry, in spite of its chimerical hopes and its enigmatical language, as well as medicine and surgery, astonish us by the rapidity of their progress, though we are frequently mortified at the sight of the monstrous prejudices which these sciences still retain.

WITHOUT mentioning the works of Gesner and Agricola containing such a fund of real information, with so slight a mixture of scientific or popular errors, we observe Bernard de Palissi sometimes displaying to us the quarries from which we derive the materials of our edifices; sometimes masses of stone that compose our mountains formed from the skeletons of sea animals, and authentic monuments of the ancient revolutions of the globe; and sometimes explaining how the waters, raised from the sea by evaporation, restored to the earth by rain, stopped by beds of clay, assembled in snow upon the hills, supply the eternal streams of rivers, brooks and fountains: while John Rei discovered those combinations of air with metallic substances, which gave birth to the brilliant theories by which within a few years, the bounds of of chymistry have been so much extended.

IN Italy the arts of epic poetry, painting and sculpture, arrived at a perfection unknown to the ancients. In France, Corneille evinced that the dramatic art was about to acquire a still nobler elevation; for whatever superiority the enthusiastical admirers of antiquity may suppose, perhaps with justice, the chefs-d'œuvres of its first geniuses to possess, it is by no means difficult, by comparing

their works with the productions of France and of Italy, for a rational enquirer to perceive the real progress which the art itself has attained in the hands of the moderns.

THE Italian language was completely formed, and in those of other nations we see the marks of their ancient barbarism continually disappearing.

MEN began to feel the utility of metaphysics and grammar, and of acquiring the art of analysing and explaining philosophically both the rules and the processes established by custom in the composition of words and phrases.

WE every where perceive, during this epoch, reason and authority striving for the mastery, a contest that prepared and gave promise of the triumph of the former.

THIS also was the period auspicious to the birth of that spirit of criticism which alone can render erudition truly productive. It was still necessary to examine what had been done by the ancients; but men were aware that, however they might admire, they were entitled to judge them. Reason, which sometimes supported itself upon authority, and against which authority had been so frequently employed, was desirous of appreciating the value of the assistance she might derive therefrom, as well as the motive of the sacrifice that was demanded of her. Those who assumed authority for the basis of their opinions, and the guide of their conduct, felt how important it was that they should be sure of the strength of their arms, and not expose themselves to the danger of having them broken to pieces upon the first attack of reason.

THE habit of writing only in Latin upon the sciences, philosophy, jurisprudence, and even history, with a few exceptions, gradually yielded to the practice of employing the common language of the

respective country. And here we may examine what influence upon the progress of the human mind was produced by this change, which rendered the sciences more popular, but diminished the facility with which the learned were able to follow them in their route; which caused a book to be read by more individuals of inferior information in a particular country, but by fewer enlightened minds through Europe in general; which superseded the necessity of learning Latin in a great number of men desirous of instruction, without having the leisure or the means of sounding the depths of erudition, but at the same time obliged the philosopher to consume more time in acquiring a knowledge of different languages.

WE may show that, as it was impossible to make the Latin a vulgar tongue common to all Europe, the continuance of the custom of writing in it upon the sciences would have been attended with a transient advantage only to those who studied them; that the existence of a sort of scientific language among the learned of all nations, while the people of each individual nation spoke a different one, would have divided men into two classes, would have perpetuated in the people prejudices and errors, would have placed an insurmountable impediment to true equality, to an equal use of the same reason, to an equal knowledge of necessary truths; and thus by stopping the progress of the mass of mankind, would have ended at last, as in the East, by putting a period to the advancement of the sciences themselves.

FOR a long time there had been no instruction but in churches and cloisters.

THE universities were still under the domination of the priests. Compelled to resign to the civil authority a part of their influence, they retain-

ed it without the smallest defalcation, so far as related to the early instruction of youth, that instruction which is equally sought in all professions, and amongst all classes of mankind. Thus they possessed themselves of the soft and flexible mind of the child, of the boy, and directed at their pleasure the first unfinished thoughts of man. To the secular power they left the superintendence of those studies which had for their object jurisprudence, medicine, scientific analysis, literature and the humanities, the schools of which were less numerous, and received no pupils who were not already broken to the sacerdotal yoke.

IN reformed countries the clergy lost this influence. The common instruction, however, though dependent on the government, did not cease to be directed by a theological spirit: but it was no longer confined to members of the priesthood. It still corrupted the minds of men by religious prejudices, but it did not bend them to the yoke of sacerdotal authority; it still made fanatics, visionaries, sophists, but it no longer formed slaves for superstition.

MEANWHILE education, being every where subjugated had corrupted every where the general understanding, by clogging the reason of children with the weight of the religious prejudices of their country, and by stifling in youth, destined to a superior course of instruction, the spirit of liberty by means of political prejudices.

LEFT to himself, every man not only found between him and truth a close and terrible phalanx of the errors of his country and age, but the most dangerous of those errors were in a manner already rendered personal to him. Before he could dissipate the errors of another, it was necessary he should begin with ascertaining his own; before he

combated the difficulties opposed by nature to the discovery of truth, his understanding, so to speak, was obliged to undergo a thorough repair. Instruction at this period conveyed some knowledge; but to render it useful, the operation of refining must take place, to separate it from the dross in which superstition and tyranny together had contrived to bury it.

WE may show what obstacles, more or less powerful, these vices of education, those religious and contradictory creeds, that influence of the different forms of government, opposed to the progress of the human mind. It will be seen that this progress was by so much the slower and unequal, in proportion as the objects of speculative enquiry intimately affected the state of politics and religion; that philosophy, in its most general sense, as well as metaphysics, the truths of which were in direct hostility to every kind of superstition, were more obstinately retarded than political enquiry itself, the improvement of which was only dangerous to the authority of kings and aristocratic assemblies; and that the same observation will equally apply to the science of material nature.

WE may farther develope the other sources of this inequality, as they may be traced in the objects of which each science treats, and the methods to which it has recourse.

IN the same manner the sources of inequality and counteraction, which operate respecting the very same science in different countries, are also the joint effect of political and natural causes. We may enquire, in this inequality, what it is that is to be ascribed to the different modes of religion, to the form of government, to the wealth of any nation, to its political importance, to its personal character, to its geographical situation, to the events and

viscissitudes it has experienced, in fine, to the accident which has produced in the midst of it any of those extraordinary men, whose influence, while it extends over the whole human race, exercises itself with a double energy in a more restrained sphere.

WE may distinguish the progress of each science as it is in itself, which has no other limit than the number of truths it includes within its sphere, and the progress of a nation in each science, a progress which is regulated first by the number of men who are acquainted with its leading and most important truths, and next by the number and nature of the truths so known.

IN fine, we are now come to that point of civilization, at which the people derive a profit from intellectual knowledge, not only by the services it reaps from men uncommonly instructed, but by means of having made of intellectual knowledge a sort of patrimony, and employing it directly and in its proper form to resist error, to anticipate or supply their wants, to relieve themselves from the ills of life, or take off the poignancy of these ills by the intervention of additional pleasure.

THE history of the persecutions to which the champions of liberty were exposed, during this epoch, ought not to be forgotten. These persecutions will be found to extend from the truths of philosophy and politics to those of medicine, natural history and astronomy. In the eighth century an ignorant pope had persecuted a deacon for contending that the earth was round, in opposition to the opinion of the retorical Saint Austin. In the seventeenth, the ignorance of another pope, much more inexcuseable, delivered Galileo into the hands of the inquisition, accused of having proved the

diurnal and annual motion of the earth. The greatest genius that modern Italy has given to the sciences, overwhelmed with age and infirmities, was obliged to purchase his release from punishment and from prison, by asking pardon of God for having taught men better to understand his works, and to admire him in the simplicity of the eternal laws by which he governs the universe.

MEANWHILE, so great was the absurdity of the theologians, that in condescension to human understanding, they granted permission to maintain the motion of the earth, at the same time they insisted that it should be only in the way of an hypothesis, and that the faith should receive no injury..... The astronomers, on the other hand, did the exact opposite of this; they treated the motion of the earth as a reality, and spoke of its immoveableness with a deference only hypothetical.

THE transition from the epoch we have been considering to that which follows, has been distinguished by three extraordinary personages, Bacon, Galileo, and Descartes. Bacon has revealed the true method of studying nature, by employing the three instruments with which she has furnished us for the discovery of her secrets, observation, experiment and calculation. He was desirous that the philosopher placed in the midst of the universe, should, as a first and necessary step in his career, renounce every creed he had received, and even every notion he had formed, in order to create, as it were, for himself, a new understanding, in which no idea should be admitted but what was precise, no opinion but what was just, no truth of which the degree of certainty or probability had not been scrupulously weighed. But Bacon, though possessing in a most eminent degree the genius of philosophy, added not thereto the genius of the sciences;

and these methods for the discovery of truth, of which he furnished no example, were admired by the learned, but produced no change in the march of the sciences.

GALILEO had enriched them with the most useful and brilliant discoveries ; he had taught by his own example the means of arriving at the knowledge of the laws of nature in a way sure and productive, in which men were not obliged to sacrifice the hope of success to the fear of being misled. He founded the first school in which sciences have been taught without a mixture of superstition, prejudice, or authority ; in which every other means than experiment and calculation have been rigorously proscribed ; but confining himself exclusively to the mathematical and physical sciences, he was unable to communicate to the general mind that impulsion which it seemed to want.

THIS honor was reserved for the daring and ingenious Descartes. Endowed with a master genius for the sciences, he joined example to precept, in exhibiting the method of finding and ascertaining truth. This method he applied to the discovery of the laws of dioptrics, of the collision of bodies, and finally of a new branch of mathematical science, calculated to extend and enlarge the bounds of all the other branches.

HE wished to extend his method to every object of human intelligence ; God, man, the universe, were in turn the subject of his meditations. If in the physical sciences, his march be less sure than that of Galileo, if his philosophy be less wary than that of Bacon, if he may be accused of not having sufficiently availed himself of the lessons of the one, and the example of the other, to distrust his imagination, to interrogate nature by experiment alone, to have no faith but in calculation, to ob-

serve the universe, instead of instructing it, to study man instead of trusting to vague conjectures for a knowledge of his nature ; yet the very boldness of his errors was instrumental to the progress of the human species. He gave activity to minds which the circumspection of his rivals could not awake from their lethargy. He called upon men to throw off the yoke of authority, to acknowledge no influence but what reason should avow : and he was obeyed, because he subjected by his daring, and fascinated by his enthusiasm.

THE human mind was not yet free, but it knew that it was formed to be free. Those who persisted in the desire of retaining it in its fetters, or who attempted to forge new ones, were under the necessity of proving that they ought to be imposed or retained, and it requires little penetration to foresee that from that period they would soon be broken in pieces.

NINTH EPOCH.

FROM THE TIME OF DESCARTES, TO THE FORMATION OF THE FRENCH REPUBLIC.

WE have seen human reason forming itself slowly by the natural progress of civilization ; superstition usurping dominion over it, thereby to corrupt it, and despotism degrading and stupefying the mental faculties by the operation of fear, and actual infliction of calamity.

ONE nation only escaped for a while this double influence. In that happy land, where liberty had kindled the torch of genius, the human mind, freed from the trammels of infancy, advanced towards truth with a firm and undaunted step. But conquest soon introduced tyranny, sure to be followed by superstition, its inseparable companion, and the whole race of man was re-plunged into darkness, destined, from appearance, to be eternal. The dawn, however, at length was observed to peep ; the eyes, long condemned to obscurity, opened and shut their lids, inuring themselves gradually till they could gaze at the light, and genius dared once more again to shine forth upon the globe, from which, by fanaticism and barbarity, it so long had been banished.

WE have seen reason revolting at, and shaking off part of its chains, and by the continual acquisition of new strength preparing and hastening the epoch of its liberty.

WE have now to run through the period in which it completed its emancipation ; in which, subjected still to a degree of bondage, it throws off, one by one, the remainder of its fetters ; in which, free at length to pursue its course, it can no longer be stopped but by those obstacles, the occurrence of which is inevitable upon every new progress, as being the result of the conformation of the mind itself, or of the connection which nature has established between our means of discovering truth, and the obstacles she opposes to our efforts.

RELIGIOUS intolerance had obliged seven of the Belgic provinces to throw off the yoke of Spain, and to form themselves into a federal republic..... The same cause had revived in England a spirit of liberty, which, tired of long and sanguinary commotions, sat down at last, contented with a constitution, admired for a while by philosophers, but having at present no other support than national superstition and political hypocrisy.

To sacerdotal persecution is it likewise to be ascribed that the Swedes had the fortitude to regain a portion of their rights.

MEANWHILE, amidst the commotions occasioned by theological contests, France, Spain, Hungary and Bohemia saw the feeble remains of their liberty, or of what, at least, bore the semblance of liberty, totally vanish from their sight.

EVEN in countries said to be free, it is in vain to look for that freedom which violates none of the natural rights of man, and which secures their indefeasible possession and uncontrouled exercise..... On the contrary, the liberty existing there, founded upon a positive right unequally shared, confers upon an individual prerogatives greater or less, according to the town which he inhabits, the class in which he is born, the fortune he possesses, or the

trade he may exercise ; and a concise picture of these fantastical distinctions in different nations, will furnish the best answer to those men who are still disposed to vindicate the advantage and necessity of them.

IN these countries, however, civil and personal liberty are guaranteed by the laws. If man be not all that he ought to be, still the dignity of his nature is not totally degraded ; some of his rights are at least acknowledged ; it can no longer be said of him that he is a slave, but only that he does not yet know how to become truly free.

IN nations among whom, during the same period, liberty may have incurred losses more or less real, so restricted were the political rights enjoyed by the generality of the people, that the annihilation of the aristocracy, almost despotic, under which they had groaned, seems to have been more than a compensation. They have lost the title of citizen, which inequality had nearly rendered illusory ; but the quality of man has been more respected, and royal despotism has saved them from a state of feudal oppression, an oppression so much the more painful and humiliating, as the number and presence of the tyrants are continually reviving the sentiment of it.

IN nations partially free, the laws must necessarily have improved, because the interests of those who hold therein the reins of power, are not in all cases at variance with the general interests of the people ; and they must also have improved in despotic states, either because the interest of the public prosperity is sometimes confounded with that of the despot, or because, seeking to destroy the remains of authority in the nobles or the clergy, the despot himself thereby communicates to the laws a spirit of equality, of which the motive indeed was

the establishment of an equality of slavery, but which has often been attended with salutary consequences.

WE may here minutely explain the causes which have produced in Europe that species of despotism, of which neither the ages that preceded, nor the other quarters of the world, have furnished an example; a despotism almost absolute, but which, restrained by opinion, influenced by the state of knowledge, and tempered in a manner by its own interest, has frequently contributed to the progress of wealth, industry, instruction, and sometimes even to that of civil liberty.

THE manners of men were meliorated by the mere decay of those prejudices which had kept alive their ferocity, by the influence of commerce and industry, the natural enemies of disorder and violence, from which wealth takes its flight, by the fear and terror occasioned by the recollection, still recent, of the barbarities of the preceding period, by a more general diffusion of the philosophical ideas of justice and equality, and lastly by the slow but sure effect of the progress of mental illumination.

RELIGIOUS intolerance still survived; but it was merely in the way of precaution, as a homage to the prejudices of the people, or as a safeguard against their inconstancy. It had lost its fiercest features. Executions at the stake, seldom resorted to, were replaced by other modes of directing religious opinions, which, if they frequently proved more arbitrary, were, however, less barbarous, till at length persecution appeared only at intervals, and resulted chiefly from the inveteracy of former habit, or from temporary weakness and complaisance.

IN every nation, and upon every subject, the policy of government followed the steps not only of

opinion, but even of philosophy ; it was however slowly, and with a sort of reluctance : and we shall always find that, in proportion as there exists a considerable distance between the point at which men of profound meditation arrive in the science of politics and morals, and that attained by the generality of thinking men, whose sentiments, when imbibed by the multitude, form what is called the public opinion, so those who direct the affairs of a nation, whatever may be its form of government, are uniformly seen below the level of this opinion ; they walk in its path, they pursue its course ; but it is with so sluggish a pace, that, so far from outstripping, they never come up with it, and are always behind by a considerable number of years, and by a portion, no less considerable, of truths.

AND NOW we arrive at the period when philosophy, the most general and obvious effects of which we have before remarked, obtained an influence on the thinking class of men, and these on the people and their governments, that, ceasing any longer to be gradual, produced a revolution in the entire mass of certain nations, and gave thereby a secure pledge of the general revolution one day to follow that shall embrace the whole human species.

AFTER ages of error, after wandering in all the mazes of vague and defective theories, writers upon politics and the law of nations at length arrived at the knowledge of the true rights of man, which they deduced from this simple principle : *that he is a being endowed with sensation, capable of reasoning upon and understanding his interests, and of acquiring moral ideas.*

THEY saw that the maintenance of his rights was the only object of political union, and that the perfection of the social art consisted in preserving

them with the most entire equality, and in their fullest extent. They perceived that the means of securing the rights of the individual, consisting of general rules to be laid down in every community, the power of choosing these means, and determining these rules, could vest only in the majority of the community: and that for this reason, as it is impossible for any individual in this choice to follow the dictates of his own understanding, without subjecting that of others, the will of the majority is the only principle which can be followed by all, without infringing upon the common equality.

EACH individual may enter into a previous engagement to comply with the will of the majority, which by this engagement becomes unanimity; he can however bind nobody but himself, nor can he bind himself except so far as the majority shall not violate his individual rights, after having recognised them.

SUCH are at once the rights of the majority over individuals, and the limits of these rights; such is the origin of that unanimity, which renders the engagement of the majority binding upon all; a bond that ceases to operate when, by the change of individuals, this species of unanimity ceases to exist. There are objects, no doubt, upon which the majority would pronounce perhaps oftener in favor of error and mischief, than in favor of truth and happiness; still the majority, and the majority only, can decide what are the objects which cannot properly be referred to its own decision; it can alone determine as to the individuals whose judgment it resolves to prefer to its own, and the method which these individuals are to pursue in exercise of their judgment; in fine, it has also an indispensable au-

thority of pronouncing whether the decisions of its officers have or have not wounded the rights of all.

From these simple principles men discovered the folly of former notions respecting the validity of contracts between a people and its magistrates, which it was supposed could only be annulled by mutual consent, or by a violation of the conditions by one of the parties; as well as of another opinion, less servile, but equally absurd, that would chain a people for ever to the provisions of a constitution when once established, as if the right of changing it were not the security of every other right, as if human institutions, necessarily defective, and capable of improvement as we become enlightened, were to be condemned to an eternal monotony. Accordingly the governors of nations saw themselves obliged to renounce that false and subtle policy, which, forgetting that all men derive from nature an equality of rights, would sometimes measure the extent of those which it might think proper to grant by the size of territory, the temperature of the climate, the national character, the wealth of the people, the state of commerce and industry; and sometimes cede them in unequal portions among the different classes of society, according to their birth, their fortune, or their profession, thereby creating contrary interests and jarring powers, in order afterwards to apply correctives, which, but for these institutions, would not be wanted, and which, after all, are inadequate to the end.

It was now no longer practicable to divide mankind into two species, one destined to govern, the other to obey, one to deceive, the other to be dupes: the doctrine was obliged universally to be acknowledged, that all have an equal right to be enlighten-

ed respecting their interests, to share in the acquisition of truth, and that no political authorities appointed by the people for the benefit of the people, can be entitled to retain them in ignorance and darkness.

THESE principles, which were vindicated by the generous Sydney, at the expence of his blood, and to which Locke gave the authority of his name, were afterwards developed with greater force, precision, and extent by Rousseau, whose glory it is to have placed them among those truths henceforth impossible to be forgotten or disputed.

MAN is subject to wants, and he has faculties to provide for them ; and from the application of these faculties, differently modified and distributed, a mass of wealth is derived, destined to supply the wants of the community. But what are the principles by which the formation or allotment, the preservation or consumption, the increase or diminution of this wealth is governed ? What are the laws of that equilibrium between the wants and resources of men which is continually tending to establish itself ; and from which results, on the one hand, a greater facility of providing for those wants, and of consequence an adequate portion of general felicity, when wealth encreases, till it has reached its highest degree of advancement ; and on the other, as wealth diminishes, greater difficulties, and of consequence proportionate misery and wretchedness, till abstinence or depopulation shall have again restored the balance ; how, in this astonishing multiplicity of labors and their produce, of wants and resources ; in this alarming, this terrible complication of interests, which connects the subsistence and well being of an obscure individual with the general system of social existence, which renders him dependent on all the accidents of na-

ture and every political event, and extends in a manner to the whole globe his faculty of experiencing privations or enjoyments; how is it that, in this seeming chaos, we still perceive, by a general law of the moral world, the efforts of each individual for himself conducing to the good of the whole, and notwithstanding the open conflict of inimical interests, the public welfare requiring that each should understand his own interest, and be able to pursue it freely and uncontrouled?

HENCE it appears to be one of the rights of man that he should employ his faculties, dispose of his wealth, and provide for his wants in whatever manner he shall think best. The general interest of the society, so far from restraining him in this respect, forbids, on the contrary, every such attempt; and in this department of public administration, the care of securing to every man the rights which he derives from nature, is the only sound policy, the only controul which the general will can exercise over the individuals of the community.

BUT this principle acknowledged, there are still duties incumbent upon the administrators of the general will, the sovereign authority. It is for this authority to establish the regulations which are destined to ascertain, in exchanges of every kind, the weight, the bulk, the length, and quantity of things to be exchanged.

IT is for this authority to ordain a common standard of valuation, that may apply to all commodities and facillitate the calculation of their valuations and comparison, and which, bearing itself an intrinsic value, may be employed in all cases as the medium of exchange.....a regulation without which commerce, restrained to the mere operations of barter, cannot acquire the necessary activity.

THE growth of every year presents us with a supererogatory value, which is destined neither to remunerate the labor of which this growth is the fruit, nor to supply the stock which is to secure an equal and more abundant growth in time to come. The possessor of this supererogatory value does not owe it immediately to his labor, and possesses it independantly of the daily and indispensible use of his faculties for the supply of his wants. This supererogatory growth is therefore the stock to which the sovereign authority may have recourse without injuring the rights of any, to supply the expences which are requisite for the security of the state, its intrinsic tranquillity, the preservation of the rights of all the exercise of the authorities instituted for the establishment or administration of law, in fine, of the maintenance through all its branches of the public prosperity. There are certain operations, establishments, and institutions, beneficial to the community at large, which it is the office of the community to introduce, direct, and superintend, and which are calculated to supply the defects of personal inclination, and to parry the struggle of opposite interests, whether for the improvement of agriculture, industry and commerce, or to prevent or diminish the evils entailed on our nature, or those which accident is continually accumulating upon us.

TILL the commencement of the epoch we are now considering, and even for some time after, these objects had been abandoned to chance, to the rapacity of governments, to the artifices of pretenders, or to the prejudices and partial interests of the powerful classes of society; but a disciple of Descartes, the illustrious and unfortunate John de Witt, perceived how necessary it was that political economy, like every other science, should be

governed by the principles of philosophy and subjected to the rules of a rigid calculation.

It made however little progress, till the peace of Utrecht promised to Europe a durable tranquillity. From this period, neglected as it had hitherto been, it became a subject of almost general attention; and by Stuart, Smith, and particularly by the French economists, it was suddenly elevated, at least as to precision and purity of principles, to a degree of perfection, not to have been expected after the long and total indifference which had prevailed upon the subject.

THE cause however of so unparalled a progress is chiefly to be found in the advancement of that branch of philosophy comprehended in the term metaphysics, taking the word in its most extensive signification.

DESCARTES had restored this branch of philosophy to the dominion of reason. He perceived the propriety of deducing it from those simple and evident truths which are revealed to us by an investigation of the operations of the mind. But scarcely had he discovered this principle than his eager imagination led him to depart from it, and philosophy appeared for a time to have resumed its independence only to become the prey of new errors. At length Locke made himself master of the proper clew. He shewed that a precise and accurate analysis of ideas, reducing them to ideas earlier in their origin or more simple in their structure, was the only means to avoid the being lost in a chaos of notions incomplete, incoherent, and undetermined, disorderly because suggested by accident, and afterwards entertained without reflecting on their nature.

HE proved by this analysis, that the whole circle of our ideas results merely from the operations

of our intellect upon the sensations we have received, or more accurately speaking, are compounded of sensations offering themselves simultaneously to the memory, and after such a manner, that the attention is fixed and the perception bounded to a particular branch or view of the sensations themselves.

HE shewed that by taking one single word to represent one single idea, properly analysed and defined, we are enabled to recal constantly the same idea, that is, the same simultaneous result of certain simple ideas, and of consequence can introduce this idea into a train of reasoning without risk of misleading ourselves.

ON the contrary, if our words do not represent fixed and definite ideas, they will at different times suggest different ideas to the mind and become the most fruitful source of error.

IN fine, Locke was the first who ventured to prescribe the limits of the human understanding, or rather to determine the nature of the truths it can ascertain and the objects it can embrace.

IT was not long before this method was adopted by philosophers in general, in treating of morals and politics, by which a degree of certainty was given to those sciences little inferior to that which obtained in the natural sciences admitting only of such conclusions as could be proved, separating these from doubtful notions, and content to remain ignorant of whatever is out of the reach of human comprehension.

IN the same manner, by analysing the faculty of experiencing pain and pleasure, men arrived at the origin of their notions of morality, and the foundation of those general principles which form the necessary and immutable laws of justice; and consequently discovered the proper motives of con-

forming their conduct to those laws, which being deduced from the nature of our feeling, may not improperly be called our moral constitution.

THE same system became, in a manner, a general instrument of acquiring knowledge. It was employed to ascertain the truths of natural philosophy, to try the facts of history, and to give laws to taste. In a word, the process of the human mind in every species of enquiry was regulated by this principle; and it is this latest effort of science which has placed an everlasting barrier between the human race and the old mistakes of its infancy, that will for ever preserve us from a relapse into former ignorance, since it has prepared the means of undermining not only our present errors, but all those by which they may be replaced, and which will succeed each other only to possess a feeble and temporary influence.

IN Germany, however, a man of a vast and profound genius laid the foundations of a new theory. His bold and ardent mind disdained to rest on the suppositions of a modest philosophy, which left in doubt those great questions of spiritual existence, the immortality of the soul, the free will of man and of God, and the existence of vice and misery in a world framed by a being whose infinite wisdom and goodness might be supposed to banish them from his creation. Leibnitz cut the knot which a timid system had in vain attempted to unloose..... He supposed the universe to be composed of atoms, which were simple, eternal, and equal in their nature. He contended that the relative situation of each of these atoms, with respect to every other, occasioned the qualities distinguishing it from all others; the human soul, and the minutest particle of a mass of stone, being each of them equally one of

these atoms, differing only in consequence of the respective places they occupy in the order of the universe.

HE maintained that, of all the possible combinations which could be formed of these atoms, an infinitely wise being had preferred, and could not but prefer, the most perfect; and that if, in that which exists, we are afflicted with the presence of vice and misery, still there is no other possible combination that would not be productive of greater evils.

SUCH was the nature of this theory, which, supported by the countrymen of Leibnitz, retarded in that part of the world the progress of philosophy. Meanwhile there started up in England an entire sect, who embraced with zeal, and defended with eloquence, the scheme of optimism: but, less acute and profound than Leibnitz, who founded his system upon the supposition of its being impossible, from his very nature, that an all-wise being should plan any other universe than that which was best, they endeavored to discover in the terraqueous part of the world the proofs of this perfection, and losing thereby the advantages which attach to this system considered generally and in the abstract, they frequently fell into absurd and ridiculous reasonings.

MEANWHILE, in Scotland other philosophers, not perceiving that the analysis of the development of our actual faculties led to a principle which gave to the morality of our actions a basis sufficiently solid and pure, attributed to the human soul a new faculty, distinct from those of sensation and reason, though at the same time combining itself with them; of the existence of which they could advance no other proof, than that it was impossible

to form a consistent theory without it. In the history of these opinions, it will be seen, that, while they have proved injurious to the progress of philosophy itself; they have tended to give a more rapid and extensive spread to ideas truly scientific, connected with philosophy.

HITHERTO we have exhibited the state of philosophy only among men by whom it has in a manner been studied, investigated, and perfected. It remains to mark its influence on the general opinion, and to show, that, while it arrived at the certain and infallible means of discovering and recognising truth, reason at the same time detected the delusions into which it had so often been led by a respect for authority or a misguided imagination, and undermined those prejudices in the mass of individuals which had so long been the scourge, at once corrupting and inflicting calamity upon the human species.

THE period at length arrived when men no longer feared openly to avow the right, so long withheld, and even unknown, of subjecting every opinion to the test of reason, or, in other words, of employing, in their search after truth, the only means they possess for its discovery. Every man learned, with a degree of pride and exultation, that nature had not condemned him to see with the eyes and to conform his judgment to the caprice of another. The superstitions of antiquity accordingly disappeared; and the debasement of reason to the shrine of supernatural faith, was as rarely to be found in society as in the circles of metaphysics and philosophy.

A CLASS of men speedily made their appearance in Europe, whose object was less to discover and investigate truth, than to disseminate it; who, pursuing prejudice through all the haunts and asy-

lums in which the clergy, the schools, governments, and privileged corporations had placed and protected it, made it their glory rather to eradicate popular errors, than add to the stores of human knowledge; thus aiding indirectly the progress of mankind, but in a way neither less arduous, nor less beneficial.

IN England, Collins and Bolingbroke, and in France, Bayle, Fontenelle, Montesquieu, and the respective disciples of these celebrated men, combated on the side of truth with all the weapons that learning, wit and genius were able to furnish; assuming every shape, employing every tone, from the sublime and pathetic to pleasantry and satire, from the most laboured investigation to an interesting romance or a fugitive essay; accommodating truth to those eyes that were too weak to bear its effulgence; artfully caressing prejudice, the more easily to strangle it; never aiming a direct blow at errors, never attacking more than one at a time, nor even that one in all its fortresses; sometimes soothing the enemies of reason, by pretending to require in religion but a partial toleration, in politics but a limited freedom; siding with despotism, when their hostilities were directed against the priesthood, and with priests when their object was to unmask the despot; sapping the principle of both these pests of human happiness, striking at the root of both these baneful trees, while apparently wishing for the reform only of glaring abuses and seemingly confining themselves to lopping off the exuberant branches; sometimes representing to the partisans of liberty, that superstition, which covers despotism as with a coat of mail, is the first victim which ought to be sacrificed, the first chain that ought to be broken; and sometimes denouncing it to tyrants as the true enemy of their power,

and alarming them with recitals of its hypocritical conspiracies and its sanguinary vengeance. These writers, meanwhile, were uniform in their vindication of freedom of thinking and freedom of writing, as privileges upon which depended the salvation of mankind. They declaimed, without cessation or weariness, against the crimes both of fanatics and tyrants, exposing every feature of severity, of cruelty, of oppression, whether in religion, in administration, in manners, or in laws; commanding kings, soldiers, magistrates and priests, in the name of truth and of nature, to respect the blood of mankind; calling upon them, with energy, to answer for the lives still profusely sacrificed in the field of battle or by the infliction of punishments, or else to correct this inhuman policy, this murderous insensibility; and lastly, in every place, and upon every occasion, rallying the friends of mankind with the cry of *reason, toleration, and humanity*.

SUCH was this new philosophy. Accordingly to those numerous classes that exist by prejudice, that live upon error, and that, but for the credulity of the people, would be powerless and extinct, it became a common object of detestation. It was every where received and every where persecuted, having kings, priests, nobles and magistrates among the number of its friends as well as of its enemies. Its leaders, however, had almost always the art to elude the pursuits of vengeance, while they exposed themselves to hatred; and to screen themselves from persecution, while at the same time they sufficiently discovered themselves not to lose the laurels of their glory.

It frequently happened that a government rewarded them with one hand, and with the other paid their enemies for calumniating them; proscribed them, yet was proud that fortune had ho-

nored its dominions with their birth; punished their opinions, and at the same time would have been ashamed not to be supposed a convert thereto.

THESE opinions were shortly embraced by every enlightened mind. By some they were openly avowed, by others concealed under an hypocrisy more or less apparent, according to the timidity or firmness of their characters, and accordingly as they were influenced by the contending interests of their profession or their vanity. At length the pride of ranging on the side of erudition became predominant, and sentiments were professed with the slightest caution, which, in the ages that preceded, had been concealed by the most profound dissimulation.

LOOK to the different countries of Europe into which, from the prevalence of the French language, become almost universal, it was impossible for the inquisitorial spirit of governments and priests to prevent this philosophy from penetrating, and we shall see how rapid was its progress. Meanwhile we cannot overlook how artfully tyranny and superstition employed against it all the arguments invented to prove the weakness and fallibility of human judgment, all the motives which the knowledge of man had been able to suggest for mistrusting his senses, for doubting and scrutinizing his reason; thus converting scepticism itself into an instrument by which to aid the cause of credulity.

THIS admirable system, so simple in its principles, which considers an unrestricted freedom as the surest encouragement to commerce and industry, which would free the people from the destructive pestilence, the humiliating yoke of those taxes apportioned with so great inequality, levied with so improvident an expence, and often attended with circumstances of such atrocious barbarity, by

substituting in their room a mode of contribution at once equal and just, and of which the burthen would scarcely be felt; this theory, which connects the power and wealth of a state with the happiness of individuals and a respect for their rights, which unites by the bond of a common felicity the different classes into which societies naturally divide themselves; this benevolent idea of a fraternity of the whole human race, of which no national interest shall ever more intervene to disturb the harmony; these principles, so attractive from the generous spirit that prevades them, as well as from their simplicity and comprehension, were propagated with enthusiasm by the French economists.

THE success of these writers was less rapid and less general than that of the philosophers; they had to combat prejudices more refined, errors more subtle. Frequently they were obliged to enlighten before they could undeceive, and to instruct good sense before they could venture to appeal to it as their judge.

IF, however, to the whole of their doctrine they gained but a small number of converts; if the general nature and inflexibility of their principles were discouraging to the minds of many; if they injured their cause by affecting an obscure and dogmatical stile, by too much postponing the interests of political freedom to the freedom of commerce, and by insisting too magisterially upon certain branches of their system, which they had not sufficiently investigated; they nevertheless succeeded in rendering odious and contemptible that dastardly, that base and corrupt policy which places the prosperity of a nation in the subjection and impoverishment of its neighbours, in the narrow views of a code of prohibitions, and in the petty calculations of a tyrannical revenue.

BUT the new truths with which genius had enriched philosophy and the science of political economy, adopted in a greater or less degree by men of enlightened understandings, extended still farther their salutary influence.

THE art of printing had been applied to so many subjects, books had so rapidly increased, they were so admirably adapted to every taste, every degree of information, and every situation of life, they afforded so easy and frequently so delightful an instruction, they had opened so many doors to truth, which it was impossible ever to close again, that there was no longer a class or profession of mankind from whom the light of knowledge could absolutely be excluded. Accordingly, though there still remained a multitude of individuals condemned to a forced or voluntary ignorance, yet was the barrier between the enlightened and unenlightened portions of mankind nearly effaced, and an insensible gradation occupied the space which separates the two extremes of genius and stupidity.

THUS there prevailed a general knowledge of the natural rights of man; the opinion even that these rights are inalienable and imprescriptible; a decided partiality for freedom of thinking and writing; for the enfranchisement of industry and commerce; for the melioration of the condition of the people; for the repeal of penal statutes against religious nonconformists; for the abolition of torture and barbarous punishments; the desire of a milder system of criminal legislation; of a jurisprudence that should give to innocence a complete security: of a civil code more simple, as well as more conformable to reason and justice; indifference as to systems of religion, considered at length as the offspring of superstition, or ranked in the number of political inventions; hatred of hypocri-

sy and fanaticism ; contempt for prejudices ; and lastly, a zeal for the propagation of truth. These principles, passing by degrees from the writings of philosophers into every class of society whose instruction was not confined to the catechism and the scriptures, became the common creed, the symbol and type of all men who were not idiots on the one hand, or, on the other, assertors of the policy of Machiavelism. In some countries these sentiments formed so nearly the general opinion, that the mass even of the people seemed ready to obey their dictates and act from their impulse.

THE love of mankind, that is to say, that active compassion which interests itself in all the afflictions of the human race, and regards with horror whatever, in public institutions, in the acts of government, or the pursuits of individuals, adds to the inevitable misfortunes of nature, was the necessary result of these principles. It breathed in every work, it prevailed in every conversation, and its benign effects were already visible even in the laws and administration of countries subject to despotism.

THE philosophers of different nations embracing, in their meditations, the entire interests of man, without distinction of country, of color, or of sect, formed, notwithstanding the difference of their speculative opinions, a firm and united phalanx against every description of error, every species of tyranny. Animated by the sentiment of universal philanthropy, they declaimed equally against injustice, whether existing in a foreign country or exercised by their own country against a foreign nation. They impeached in Europe the avidity which stained the shores of America, Africa, and Asia with cruelty and crimes. The philosophers of France and England gloried in assuming the appellation, and fulfilling the duties,

of *friends* to those very negroes whom their ignorant oppressors disdained to rank in the class of men. The French writers bestowed the tribute of their praise on the toleration granted in Russia and Sweden, while Beccaria refuted in Italy the barbarous maxims of Gallic jurisprudence. The French also endeavored to open the eyes of England respecting her commercial prejudices, and her superstitious reverence for the errors of her constitution; while the virtuous Howard remonstrated at the same time with the French upon the cool barbarity which sacrificed so many human victims in their prisons and hospitals.

NEITHER the violence nor the corrupt arts of government, neither the intolerance of priests, nor even the prejudices of the people themselves, possessed any longer the fatal power of suppressing the voice of truth; and nothing remained to screen the enemies of reason, or the oppressors of liberty, from the sentence which was about to be pronounced upon them by the unanimous suffrage of Europe.

WHILE the fabric of prejudice was thus tottering to its foundations, a fatal blow was given to it by a doctrine, of which Turgot, Price, and Priestly were the first and most illustrious advocates; it was the doctrine of the infinite perfectibility of the human mind. The consideration of this opinion will fall under the tenth division of our work, where it will be developed with sufficient minuteness. But we shall embrace this opportunity of exposing the origin and progress of a false system of philosophy, to the overthrow of which the doctrine of the perfectibility of man is become so necessary.

THE sophistical doctrine to which I allude, derived its origin from the pride of some men, and the selfishness of others. Its real, though conceal-

ed object, was to give duration to ignorance, and to prolong the reign of prejudice. The adherents of this doctrine, who have been numerous, sometimes attempted to delude the reason by brilliant paradoxes, or to seduce it by the specious charms of an universal pyrrhonism. Sometimes they assumed the boldness peremptorily to declare, that the advancement of knowledge threatened the most fatal consequences to human happiness and liberty; at other times they declaimed, with pompous enthusiasm, in favor of an imaginary wisdom and sublimity, that disdained the cold progress of analysis, and the tardy mechanical path of experience. Upon one occasion, they were accustomed to speak of philosophy and the abstruse sciences as theories too subtle for the investigation of the human understanding, urged as we are by daily wants, and subjected to the most sudden vicissitudes; at another, they treated them as a mass of blind and idle conjectures, the false estimation of which was sure to disappear from the mind of a man habituated to life and experience. Incessantly did they lament the decay and decrepitude of knowledge, in the midst of its most brilliant progress; the rapid degradation of the human species, at the moment that men were ready to assert their rights and trust to their own understandings; an approaching æra of barbarism, darkness and slavery, when evidence was so perpetually accumulating that the revival of such an æra was no longer to be feared..... They seemed humbled by the advances of their species, either because they could not boast of having contributed to them, or because they saw themselves menaced with a speedy termination of their influence or importance. In the meanwhile, a certain number of intellectual mountebanks, more skilful than those who desperately endeavored to prop the edifice of declining superstition, attempt-

ed, out of the wreck of superstition, erect a new religious creed which should no longer demand of our reason any more than a sort of formal submission, and which indulged us with a perfect liberty of conscience, provided we would admit some slight fragment of incomprehensibility into our system. A second class of these mountebanks assayed to revive, by means of secret associations, the forgotten mysteries of a sort of oriental theurgy. The errors of the people they left undisturbed: upon their own disciples they entailed new terrors, and ventured to hope, by a process of cunning, to restore the ancient tyranny of the sacerdotal princes of India and Egypt. In the mean time, philosophy, leaning upon the pillar which science had prepared, smiled at their efforts, and saw one attempt vanish after another, as the waves retire from the foot of an immovable rock.

By comparing the disposition of the public mind which I have already sketched, with the prevailing systems of government, we shall perceive, without difficulty, that an important revolution was inevitable, and that there were two ways only in which it could take place: either the people themselves would establish a system of policy upon those principles of nature and reason, which philosophy had rendered so dear to their hearts; or government might hasten to supersede this event, by reforming its vices, and governing its conduct by the public opinion. One of these revolutions would be more speedy, more radical, but also more tempestuous; the other less rapid, less complete, but more tranquil; in the one, liberty and happiness would be purchased at the expence of transient evils; in the other, these evils would be avoided; but a part of the enjoyments necessary to a state of perfect freedom, would be retarded

in its progress, perhaps, for a considerable period, though it would be impossible in the end that it should not arrive.

THE corruption and ignorance of the rulers of nations have preferred, it seems the former of these modes; and the sudden triumph of reason and liberty has avenged the human race.

THE simple dictates of good sense had taught the inhabitants of the British colonies, that men born on the American side of the Atlantic ocean had received from nature the same rights as others born under the meridian of Greenwich, and that a difference of sixty-six degrees of longitude could have no power of changing them. They understood, more perfectly perhaps than Europeans, what were the rights common to all the individuals of the human race; and among these they included the right of not paying any tax to which they had not consented. But the British government, pretending to believe that God had created America, as well as Asia, for the gratification and good pleasure of the inhabitants of London, resolved to hold in bondage a subject nation, situated across the seas at the distance of three thousand miles, intending to make her the instrument in due time of enslaving the mother country itself. Accordingly, it commanded the servile representatives of the people of England to violate the rights of America, by the subjecting her to compulsory taxation. This injustice she conceived, authorised her to dissolve every tie of connection, and she declared her independence.

THEN was observed, for the first time, the example of a great people throwing off at once every species of chains, and peaceably framing for itself the form of government and the laws which it judged would be most conducive to its happiness; and

as, from its geographical position, and its former political state, it was obliged to become a federal nation, thirteen republican constitutions were seen to grow up in its bosom, having for their basis a solemn recognition of the natural rights of man, and for their first object the preservation of those rights through every department of the union.

IF we examine the nature of these constitutions, we shall discover in what respect they were indebted to the progress of the political sciences, and what was the portion of error, resulting from the prejudices of education which formed its way into them: why, for instance, the simplicity of these constitutions is disfigured by the system of a balance of powers; and why an identity of interests, rather than an equality of rights, is adopted as their principle. It is manifest that this principle of identity of interests, when made the rule of political rights is not only a violation of such rights, with respect to those who are denied an equal share in the exercise of them, but that it ceases to exist the very instant it becomes an actual inequality. We insist the rather on this, as it is the only dangerous error remaining, the only error respecting which men of enlightened minds want still to be undeceived. At the same time, however, we see realized in these republics an idea, at that time almost new even in theory; I mean the necessity of establishing by law a regular and peaceable mode of reforming the constitutions themselves, and of placing this business in other hands than those entrusted with the legislative power.

MEANWHILE, in consequence of America declaring herself independent of the British government, a war ensued between the two enlightened nations, in which one contended for the natural

rights of mankind, the other for that impious doctrine which subjects these rights to prescription, to political interests, and written conventions..... The great cause at issue was tried, during this war, in the tribunal of opinion, and, as it were, before the assembled nations of mankind. The rights of men were freely investigated, and strenuously supported in writings which circulated from the banks of the Neva to those of the Guadalquivir. These discussions penetrated into the most enslaved countries, into the most distant and retired hamlets..... The simple inhabitants were astonished to hear of rights belonging to them : they enquired into the nature and importance of those rights : they found that other men were in arms, to re-conquer or to defend them.

IN this state of things it could not be long before the transatlantic revolution must find its imitators in the European quarter of the world. And if there existed a country in which, from attachment to their cause, the writings and principles of the Americans were more widely disseminated than in any other part of Europe ; a country at once the most enlightened, and the least free ; in which philosophers had soared to the sumblimest pitch of intellectual attainment, and the government was sunk in the deepest and most intolerable ignorance ; where the spirit of the laws was so far below the general spirit and illumination, that national pride and inveterate prejudice were alike ashamed of vindicating the old institutions : If, I say, there existed such a country, were not the people of that country destined by the very nature of things, to give the first impulse to this revolution, expected by the friends of humanity with such eager impatience, such ardent hope ? Accordingly it was to commence with France.

THE impolicy and unskilfulness of the French government hastened the event. It was guided by the hand of philosophy, and the popular force destroyed the obstacles that otherwise might have arrested its progress.

IT was more complete, more entire than that of America, and of consequence was attended with greater convulsions in the interior of the nation, because the Americans, satisfied with the code of civil and criminal legislation which they had derived from England, having no corrupt system of finance to reform, no feudal tyrannies, no hereditary distinctions, no privileges of rich and powerful corporations, no system of religious intolerance to destroy, had only to direct their attention to the establishment of new powers to be substituted in the place of those hitherto exercised over them by the British government. In these innovations there was nothing that extended to the mass of the people, nothing that altered the subsisting relations formed between individuals: whereas the French revolution, for reasons exactly the reverse, had to embrace the whole economy of society, to change every social relation, to penetrate to the smallest link of the political chain, even to those individuals, who, living in peace upon their property, or by their industry, were equally unconnected with public commotions, whether by their opinions and their occupations, or by the interests of fortune, of ambition, or of glory.

THE Americans, as they appeared only to combat against the tyrannical prejudices of the mother country, had for allies the rival powers of England, while other nations, jealous of wealth, and disgusted at the pride of that country, aided, by their secret aspirations, the triumph of justice: thus all Europe leagued, as it were, against the oppres-

30r. The French, on the contrary, attacked at once the despotism of kings, the political inequality of constitutions partially free, the pride and prerogatives of nobility, the domination, intolerance, and rapacity of priests, and the enormity of feudal claims, still respected in almost every nation in Europe ; and accordingly the powers we have mentioned, united in favor of tyranny ; and there appeared on the side of the Gallic revolution the voice only of some enlightened sages, and the timid wishes of certain oppressed nations : succors, meanwhile, of which all the artifices of calumny have been employed to deprive it.

It would be easy to show how much more pure, accurate, and profound, are the principles upon which the constitution and laws of France have been formed, than those which directed the Americans, and how much more completely the authors have withdrawn themselves from the influence of a variety of prejudices ; that the great basis of policy, the equality of rights, has never been superseded by that fictitious identity of interests, which has so often been made its feeble and hypocritical substitute ; that the limits prescribed to political power have been put in the place of that specious balance which has so long been admired ; that we were the first to dare, in a great nation necessarily dispersed, and which cannot personally be assembled but in broken and numerous parcels, to maintain in the people their rights of sovereignty, the right of obeying no laws but those which, though originating in a representative authority, shall have received their last sanction from the nation itself, laws which, if they be found injurious to its rights or interests, the nation is always organized to reform by a regular act of its sovereign will.

FROM the time when the genius of Descartes impressed on the minds of men that general impulse, which is the first principle of a revolution in the destiny of the human species, to the happy period of entire social liberty, in which man has not been able to regain his natural independence till after having passed through a long series of ages of misfortune and slavery, the view of the progress of mathematical and physical science presents to us an immense horizon, of which it is necessary to distribute and assort the several parts, whether we may be desirous of fully comprehending the whole, or of observing their mutual relations.

THE application of algebra to geometry not only became the fruitful source of discoveries in both sciences, but they prove, from this striking example, how much the method of computation of magnitudes in general may be extended to all questions, the object of which consists in the measure and extension. Descartes first announced the truth, that they would be employed with equal success hereafter upon all objects susceptible of precise valuation; and this great discovery, by shewing for the first time the ultimate purpose of these sciences, that is to say, the strict calculation of every species of truth, afforded the hope of attaining this point, at the same time that it exhibited the means.

THIS discovery was soon succeeded by that of a new method of computing, which teaches us to find the ratios of the successive increments or decrements of a variable quantity, or to deduce the quantity itself when this ratio is given; whether the increments be supposed of infinite magnitude, or their ratio be sought for the instant only of their

vanishment; a method which, being extended to all the combination of variable magnitudes, and to all the hypothesis of their variations, leads to a determination, with regard to all things precisely measurable of the ratios of their elements, or of the things themselves, from the knowledge of those proportions which they mutually have, provided the ratios of their elements only be given.

WE are indebted to Newton and Leibnitz for the invention of those methods; but the labors of the geometers of the preceding are prepared the way for this discovery. The progress of these sciences, which has been uninterrupted for more than a century, is the work, and establishes the reputation, of a number of men of genius. They present to the eyes of the philosopher, who is able to observe them, even though he may not follow their steps, a striking monument of the force of the human mind.

WHEN we explain the formation and principles of algebraic language, which along is accurate and truly analytic; the nature of the technical processes of this science; and the comparison of these processes with the natural operations of the human mind, we may prove that, if this method be not itself a peculiar instrument in the science of quantity, it certainly includes the principles of an universal instrument applicable to all possible combinations of ideas.

RATIONAL mechanics soon became a vast and profound science. The true laws of the collision of bodies, respecting which Descartes was deceived, were at length known.

HUYGHENS discovered the laws of circular motions; and at the same time he gives a method determining the radius curvature for every point of a given curve. By uniting both theories, Newton

invented the theory of curve-lined motions, and applied it to those laws according to which Kepler had discovered that the planets describe their elliptical orbits.

A PLANET, supposed to be projected into space at a given instant, with a given velocity and direction, will describe round the sun an ellipsis, by virtue of a force directed to that star, and proportional to the inverse ratio of the squares of the distances. The same force retains the satellites in their orbits round the primary planets; it pervades the whole system of Heavenly bodies, and acts reciprocally between all their component parts.

THE regularity of the planetary ellipses is disturbed, and the calculation precisely explains the very slightest degrees of these perturbations. It is equally applicable to the comets, and determines their orbits with such precision, as to foretel their return. The peculiar motion observed in the axes of rotation of the earth and the moon, affords additional proof of the existence of this universal force. Lastly, it is the cause of the weight of terrestrial bodies, in which effect it appears to be invariable, because we have no means of observing its action at distances from the centre, which are sufficiently remote from each other.

THUS we see man has at last become acquainted, for the first time, with one of the physical laws of the universe. Hitherto it stands unparalleled, as does the glory of him who discovered it.

AN hundred years of labor and investigation have confirmed this law, to which all the celestial phenomena are subjected, with an accuracy which may be said to be miraculous. Every time in which an apparent deviation has presented itself, the transient uncertainty has soon become a subject of new triumph to the science.

THE philosopher is, in almost every instance, compelled to have recourse to the works of a man of genius for the secret clue which led him to discovery ; but here interest, inspired by admiration, has discovered and preserved anecdotes of the greatest value, since they permit us to follow Newton step by step. They serve to show how much the happy combinations of external events, or chance, unite with the efforts of genius in producing a great discovery, and how easily combinations of a less favorable nature might have retarded them, or reserved them for other hands.

BUT Newton did more, perhaps, in favor of the progress of the human mind, than merely discovering this general law of nature ; he taught men to admit in natural philosophy no other theories but such as are precise, and susceptible of calculation ; which give an account not only of the existence of a phenomenon, but its quantity and extent. Nevertheless he was accused of reviving the occult qualities of the ancients, because he had confined himself to refer the general cause of celestial appearances to a simple fact, of which observation proved the incontestable reality ; and this accusation is itself a proof how much the methods of the sciences still require to be enlightened by philosophy.

A GREAT number of problems in statics and dynamics had been successively proposed and resolved, when Alembert discovered a general principle adequate to the determination of the motions of any number of points acted on by any forces, and connected by conditions. He soon extended the same principle to finite bodies of a determinate figure ; to those which, from elasticity or flexibility, are capable of changing their figure, but according to certain laws and preserving certain re-

lations between their parts; and lastly to fluids themselves, whether they preserve the same density, or exist in a state of expansibility. A new calculation was necessary to resolve these last questions; the means did not escape him, and mechanics at present form a science of pure calculation.

THESE discoveries belong to the mathematical sciences; but the nature of the law of universal gravitation, or of these principles of mechanics, and the consequences which may thence be drawn and applied to the eternal order of the universe, belong to philosophy. We learn that all bodies are subject to necessary laws, which tend of themselves to produce or maintain an equilibrium which causes, or preserves the regularity of their motions.

THE knowledge of those laws which govern the celestial phenomena, the discoveries of that mathematical analysis which leads to the most precise methods of calculating the appearances, the very unexpected degree of perfection to which optical and goniometrical instruments have been brought, the precision of machines for measuring time, the more general taste for the sciences, which unites itself with the interest of governments, to multiply the number of astronomers and observations; all these causes unite to secure the progress of astronomy.

THE heavens are enriched for the man of science with new stars, and he applies his knowledge to determine and foretel with accuracy their positions and movements. Natural philosophy, gradually delivered from the vague explanations of Descartes, in the same manner as it before was disembarassed from the absurdities of the schools, is now nothing more than the art of interrogating nature by experiment, for the purpose of afterwards deducing more general facts by computation.

THE weight of the air is known and measured : it is known that the transmission of light is not instantaneous ; its velocity is determined, with the effects which must result from that velocity, as to the apparent position of the celestial bodies ; and the decomposition of the solar rays into others of different refrangibility and color. The rainbow is explained, and the methods of causing its colors to be produced or to disappear are subjected to calculation. Electricity, formerly considered as the property of certain substances only, is now known to be one of the most general phenomena in the universe. The cause of thunder is no longer a secret ; Franklin has taught the artist to change its course, and direct it at pleasure. New instruments are employed to measure the variations of weight and humidity in the atmosphere, and the temperature of all bodies. A new science, under the name of meteorology, teaches us to know, and sometimes to foretell, the atmospheric appearances of which it will hereafter disclose to us the unknown laws.

WHILE we present a sketch of these discoveries, we may remark how much the methods which have directed philosophers in their researches are simplified and brought to perfection ; how greatly the art of making experiments, and of constructing instruments, has successively become more accurate ; so that philosophy is not only enriched every day with new truths, but the truths already known have been more exactly ascertained ; so that not only an immense mass of new facts have been observed and analysed, but the whole has been submitted in detail to methods of greater strictness.

NATURAL philosophy has been obliged to combat with the prejudices of the schools, and the at-

traction of general hypothesis, so seducing to indolence. Other obstacles retarded the progress of chemistry. It was imagined that this science ought to afford the secret of making gold, and that of rendering man immortal.

THE effect of great interests, is to render man superstitious. It was not supposed that such promises, which flatter the two strongest passions of vulgar minds, and besides rouse that of acquiring glory, could be accomplished by ordinary means; and every thing which credulity or folly could ever invent of extravagance, seemed to unite in the minds of chemists.

BUT these chimeras gradually gave place to the mechanical philosophy of Descartes, which in its turn gave place to a chemistry truly experimental. The observation of those facts which accompany the mutual composition and decomposition of bodies, the research into the laws of these operations, with the analysis of substances into elements of greater simplicity, acquire a degree of precision and strictness ever increasing.

BUT to these advances of chemistry we must add others, which embrace the whole system of the science, and rather by extending the methods than immediately increasing the mass of truths, foretel and prepare a revolution of the happiest kind..... Such has been the discovery of new means of confining and examining those elastic fluids, which formerly were suffered to escape; a discovery which, by permitting us to operate upon an entire class of new principles, and upon those already known, reduced to a state which escaped our researches, and by adding an element the more to almost every combination, has changed, as it were, the whole system of chemistry. Such has been the formation of a language, in which the names denoting

substances sometimes express the resemblance or differences of those which have a common element, and sometimes the class to which they belong..... To these advantages we may add the use of a scientific method, wherein these substances are represented by characters analytically combined, and moreover capable of expressing the most common operations and the general laws of affinity..... And, again, this science is enriched by the use of all the means and all the instruments which philosophers have applied to compute with the utmost rigor the results of experiment; and lastly, by the application of the mathematics to the phenomena of chrystalization, and to the laws according to which the elements of certain bodies effect in their combination regular and constant forms.

MEN who long had possessed no other knowledge than that of explaining by superstitious or philosophical reveries the formation of the earth, before they endeavored to become acquainted with its parts, have at last perceived the necessity of studying with the most scrupulous attention the surface of the ground, the internal parts of the earth into which necessity has urged men to penetrate, the substances there found, their fortuitous or regular distribution, and the disposition of the masses they have formed by their union. They have learned to ascertain the effects of the slow and long continued action of the waters of the sea, of rivers, and the effect of volcanic fires; to distinguish those parts of the surface and exterior crust of the globe, of which the inequalities, disposition, and frequently the materials themselves, are the work of these agents; from the other portion of the surface, formed for the most part of heterogeneous substances, bearing the marks of more ancient revolutions by agents with which we are yet unacquainted.

MINERALS, vegetables, and animals are divided into various species, of which the individuals differ by insensible variations scarcely constant, or produced by causes purely local. Many of these species resemble each other by a greater or less number of common qualities, which serve to establish successive divisions regularly more and more extended. Naturalists have invented methods of classing the objects of science from determinate characters easily ascertained, the only means of avoiding confusion in the midst of this numberless multitude of individuals. These methods are, indeed, a real language, wherein each object is denoted by some of its most constant qualities, which, when known, are applicable to the discovery of the name which the article may bear in common language. These general languages, when well composed, likewise indicate, in each class of natural objects, the truly essential qualities which by their union cause a more or less perfect resemblance in the rest of their properties.

WE have formerly seen the effects of that pride which magnifies in the eyes of men the objects of an exclusive study, and knowledge painfully acquired, which attaches to these methods an exaggerated degree of importance, and mistakes for science itself that which is nothing more than the dictionary and grammar of its real language. And so likewise, by a contrary excess, we have seen philosophers falsely degrade these same methods, and confound them with arbitrary nomenclatures, as futile and laborious compilations.

THE chemical analysis of the substances in the three great kingdoms of nature ; the description of their external form ; the exposition of their physical qualities and usual properties ; the history of

the developement of organized bodies, animals, or plants; their nutrition and reproduction; the details of their organization; the anatomy of their various parts; the functions of each; the history of the manners of animals and their industry to procure food, defence, and habitation, or to seize their prey, or escape from their enemies; the societies of family or species which are formed amongst them; that great mass of truth to which we are led by meditating on the immense chain of organized beings; the relation which successive years produce from brute matter at the most feeble degree of organization, from organized matter to that which affords the first indications of sensibility and spontaneous motion; and from this station to that of man himself; the relation of all these beings with him, whether relative to his wants, the analogies which bring him nearer to them, or the differences by which he is separated; such is the sketch presented to the mind by modern natural history.

THE physical man is himself the object of a separate science, anatomy, which, in its general acceptation, includes physiology. This science, which a superstitious respect for the dead had retarded, has taken advantage of the general disappearance of prejudice, and has happily opposed the interest of the preservation of man, which has secured it the patronage of men of eminence. Its progress has been such, that it seems in some sort to be at a stand, in the expectation of more perfect instruments and new methods. It is nearly reduced to seek in the comparative anatomy of the parts of animals and man, in the organs common to the different species, and the manner in which they exercise similar functions, those truths which the direct observation of the human frame appears to

refuse. Almost every thing which the eye of the observer, assisted by the microscope, has been able to discover, is already ascertained. Anatomy appears to stand in need of experiments, so useful to the progress of other sciences ; but the nature of its object deprives it of this means, so evidently necessary to its perfection.

THE circulation of the blood was long since known ; but the disposition of the vessels which conveyed the chyle to mix with it, and repair its losses ; the existence of a gastric fluid which disposes the elements to the decomposition necessary to separate from organized matter, that portion which is proper to become assimilated with living fluids ; the changes undergone by the various parts and organs in the interval between conception and birth, and afterwards during the different ages of life ; the distinction between the parts possessing sensibility and those in which irritability only resides, a property discovered by Haller, and common to almost every organic substance : these facts are the whole of what physiology has been enabled to discover, by indubitable observations, during this brilliant epoch ; and these important truths may serve as an apology for the numerous explanations, mechanical, chemical, and organical, which have succeeded each other, and loaded this science with hypotheses destructive to its progress, and dangerous when used as the ground of medical practice. To the outline of the sciences we may add that of the arts, which, being founded upon them, have advanced with greater certainty, and broken the shackles of custom and common practice, which heretofore impeded their progress.

WE may shew the influence which the progress of mechanics, of astronomy, of optics, and of the art of measuring time, has exercised on the art of

constructing, moving, and directing vessels at sea. We may shew how greatly an increase of the number of observers, and a great degree of accuracy in the astronomical determinations of positions, and in topographical methods, have at last produced an acquaintance with the surface of the globe, of which so little was known at the end of the last century.

How greatly the mechanic arts, properly so called, have given perfection to the processes of art in constructing instruments and machines in the practice of trade, and these last have no less added force to rational mechanism and philosophy. These arts are also greatly indebted to the employment of first movers already known, with less of expence and loss, as well as to the invention of new principles of motion.

WE have beheld architecture extend its researches into the science of equilibriums and the theory of fluids, for the means of giving the most commodious and least expensive form to arches, without fear of altering their solidity; and to oppose against the effort of water a resistance computed with greater certainty; to direct the course of that fluid, and to employ it in canals with greater skill and success.

WE have beheld the arts dependant on chymistry enriched with new processes; the ancient methods have been simplified, and cleared from useless or obnoxious substances, and from absurd or imperfect practices introduced from former rude trials; means have been invented to avert those frequently terrible dangers to which workmen were exposed. Thus it is that the application of science has secured to us more riches and enjoyment, with much less of painful sacrifice or of regret.

IN the mean time, chemistry, botany, and natural history, have very much enlightened the economical arts, and the culture of vegetables destined to supply our wants ; such as the art of supporting, multiplying, and preserving domestic animals ; the bringing their races to perfection, and meliorating their products ; the art of preparing and preserving the productions of the earth, or those articles which are of animal product.

SURGERY and pharmecy have become almost new arts, from the period when anatomy and chemistry have offered them more enlightened and more certain direction.

THE art of medicine, for in its practice it must be considered as an art, is by this means delivered at least of its false theories, its pedantic jargon, its destructive course of practice, and the servile submission to the authority of men, or the doctrine of colleges ; it is taught to depend only on experience. The means of this art have become multiplied, and their combination and application better known ; and though it may be admitted that in some parts its progress is merely of a negative kind, that is to say, in the destruction of dangerous practices and hurtful prejudices, yet the new methods of studying chemical medicine, and of combining observations, give us reason to expect more real and certain advances.

WE may endeavor more especially to trace that practice of genius in the sciences which at one time descends from an abstract and profound theory to learned and delicate applications ; at another, simplifying its means, and proportioning them to its wants, concludes by spreading its advantages thro' the most ordinary practices ; and at others again being rouzed by the wants of this same course of

art, it plunges into the most remote speculations, in search of resources which the ordinary state of our knowledge must have refused.

WE may remark that those declamations which are made against the utility of theories, even in the most simple arts, have never shewn any thing but the ignorance of the declaimers. We may prove that it is not to the profundity of these theories, but, on the contrary, to their imperfection, that we ought to attribute the inutility or unhappy effects of so many useless applications.

THESE observations will lead us to one general truth, that in all the arts the results of theory are necessarily modified in practice; that certain sources of inaccuracy exist, which are really inevitable, of which our aim should be to render the effect insensible, without indulging the chimerical hope of removing them; that a great number of data relative to our wants, our means, our time, and our expences which are necessarily overlooked in the theory, must enter into the relative problem of immediate and real practice; and that, lastly by introducing these requisites with that skill which truly constitutes the genius of the practical man, we may at the same time go beyond the narrow limits wherein prejudice against theory threatens to detain the arts, and prevent those errors into which an improper use of theory might lead us.

THOSE sciences which are remote from each other, cannot be extended without bringing them nearer, and forming points of contact between them.

AN exposition of the progress of each science is sufficient to shew, that in several the intermediate application of numbers has been useful, as, in almost all, it has been employed to give a greater degree of precision to experiments and observati-

ons; and that the sciences are indebted to mechanics which has supplied them with more perfect and more accurate instruments. How much have the discovery of microscopes, and of meteorological instruments contributed to the perfection of natural history. How greatly is this science indebted to chemistry, which, alone, has been sufficient to lead to a more profound knowledge of the objects it considers, by displaying their most intimate nature, and most essential properties.....by shewing their composition and elements; while natural history offers to chymistry so many operations to execute, such a numerous set of combinations formed by nature, the true elements of which require to be separated, and sometimes discovered, by an imitation of the natural processes: and, lastly, how great is the mutual assistance afforded to each other by chymistry and natural philosophy; and how greatly have anatomy and natural history been already benefitted by these sciences.

BUT we have yet exposed no more than a small portion of the advantages which have been received, or may be expected, from these applications.

MANY geometers have given us general methods of deducing, from observations of the empiric laws of phenomena, methods which extend to all the sciences; because they are in all cases capable of affording us the knowledge of the law of the successive values of the same quantity, for a series of instants or positions; or that law according to which they are distributed, or which is followed by the various properties and values of a similar quality among a given number of objects.

APPLICATIONS have already proved, that the science of combination may be successfully employed to dispose observations, in such a manner, that

their relations, results, and sum may with more facility be seen.

THE uses of the calculation of probabilities foretel how much they may be applied to advance the progress of other sciences ; in one case, to determine the probability of extraordinary facts, and to shew whether they ought to be rejected, or whether, on the contrary, they ought to be verified ; or in calculating the probability of the return of those facts which often present themselves in the practice of the arts, and are not connected together in an order, yet considered as a general law. Such, for example, in medicine, is the salutary effect of certain remedies, and the success of certain preservatives. These applications likewise shew us how great is the probability that a series of phenomena should result from the intention of a thinking being ; whether this being depends on other co-existent, or antecedent phenomena ; and how much ought to be attributed to the necessary and unknown cause denominated chance, a word the sense of which can only be known with precision by studying this method of computing.

THE sciences have likewise taught us to ascertain the several degrees of certainty to which we may hope to attain ; the probability according to which we can adopt an opinion, and make it the basis of our reasonings, without injuring the rights of sound argument, and the rules of our conductwithout deficiency in prudence, or offence to justice. They shew what are the advantages or disadvantages of various forms of election, and modes of decision dependant on the plurality of voices ; the different degrees of probability which may result from such proceedings ; the method which public interest requires to be followed, according to the nature of each question ; the means

of obtaining it nearly with certainty, when the decision is not absolutely necessary, or when the inconveniences of two conclusions being unequal, neither of them can become legitimate until beneath this probability; or the assurance beforehand of most frequently obtaining this same probability, when, on the contrary, a decision is necessary to be made, and the most feeble preponderance of probability is sufficient to produce a rule of practice.

AMONG the number of these applications we may likewise state, an examination of the probability of facts for the use of such as have not the power, or means, to support their conclusions upon their own observations; a probability which results either from the authority of witnesses, or the connection of those facts with others immediately observed.

How greatly have enquiries into the duration of human life, and the influence in this respect of sex, temperature, climate, profession, government and habitudes of life; on the morality which results from different diseases; the changes which population experiences; the extent of the action of different causes which produce these changes; the manner of its distribution, in each country, according to the age, sex and occupation :.....how greatly useful have these researches been to the physical knowledge of man, to medicine, and to public economy.

How extensively have computations of this nature been applied for the establishment of annuities, tontines accumulating funds, benefit societies, and chambers of assurance of every kind.

Is not the application of numbers also necessary to that part of the public economy which includes the theory of public measures, of coin, of

banks and financial operations, and lastly, that of taxation, as established by law, and its real distribution, which so frequently differs, in its effects on all parts of the social system.

WHAT a number of important questions in this same science are there, which could not have been properly resolved without the knowledge acquired in natural history, agriculture, and the philosophy of vegetables, which influence the mechanical or chemical arts.

IN a word, such has been the general progress of sciences, that it may be said there is not one which can be considered as to the whole extent of its principles and detail, without our being obliged to borrow the assistance of all the others.

IN presenting this sketch both of the new facts which have enriched the sciences respectively, and the advantages derived in each from the application of theories, or methods, which seem to belong more particularly to another department of knowledge, we may endeavor to ascertain what is the nature and the limits of those truths to which observation, experience, or meditation, may lead us in each science ; we may likewise investigate what it is precisely that constitutes that talent of invention which is the first faculty of the human mind, and is known by the name of genius ; by what operations the understanding may attain the discoveries it pursues, or sometimes be led to others not sought, or even possible to have been foretold ; we may shew how far the methods which lead to discovery may be exhausted, so that science may, in a certain respect, be at a stand, till new methods are invented to afford an additional instrument to genius, or to facilitate the use of those which cannot be employed without too great a consumption of time and fatigue.

IF we confine ourselves to exhibit the advantages deduced from the sciences in their immediate use or application to the arts, whether for the welfare of individuals or the prosperity of nations, we shall have shewn only a small part of the benefits they afford. The most important perhaps is, that prejudice has been destroyed, and the human understanding in some sort rectified; after having been forced into a wrong direction by absurd objects of belief, transmitted from generation to generation, taught at the misjudging period of infancy, and enforced with the terrors of superstition and the dread of tyranny.

ALL the errors in politics and in morals are founded upon philosophical mistakes, which themselves, are connected with physical errors. There does not exist any religious system, or supernatural extravagance, which is not founded on an ignorance of the laws of nature. The inventors and defenders of these absurdities could not foresee the successive progress of the human mind. Being persuaded that the men of their time knew every thing they would ever know, and would always believe that in which they then had fixed their faith; they confidently built their reveries upon the general opinions of their own country and their own age.

W

THE progress of natural knowledge is yet more destructive of these errors, because it frequently destroys them without seeming to attack them, by attaching to those who obstinately defend them the degrading ridicule of ignorance.

AT the same time, the just habit of reasoning on the object of these sciences, the precise ideas which their methods afford, and the means of ascertaining or proving the truth, must naturally lead us to compare the sentiment which forces us

to adhere to opinions founded on these real motives of credibility, and that which attaches us to our habitual prejudices, or forces us to yield to authority. This comparison is sufficient to teach us to mistrust these last opinions, to shew that they were not really believed, even when that belief was the most earnestly and the most sincerely professed..... When this discovery is once made, their destruction becomes much more speedy and certain.

LASTLY, this progress of the physical sciences, which the passions and interest do not interfere to disturb; wherein it is not thought that birth, profession, or appointment have given a right to judge what the individual is not in a situation to understand; this more certain progress cannot be observed, unless enlightened men shall search in the other sciences to bring them continually together. This progress at every step exhibits the model they ought to follow; according to which they may form a judgment of their own efforts, ascertain the false steps they may have taken, preserve themselves from pyrrhonism as well as credulity, and from a blind mistrust or too extensive submission to the authorities even of men of reputation and knowledge.

THE metaphysical analysis would, no doubt, lead to the same results, but it would have afforded only abstract principles. In this method, the same abstract principles being put into action, are enlightened by example, and fortified by success.

UNTIL the present epoch, the sciences have been the patrimony only of a few; but they are already become common, and the moment approaches in which their elements, their principles, and their most simple practice, will become really popular. Then it will be seen how truly universal

their utility will be in their application to the arts, and their influence on the general rectitude of the mind.

WE may trace the progress of European nations in the instruction of children, or of men ; a progress hitherto feeble, if we attend merely to the philosophical system of this instruction, which, in most parts, is still confined, to the prejudices of the schools ; but very rapid if we consider the extent and nature of the objects taught, which no longer comprehending any points of knowledge but such as are real, includes the elements of almost all the sciences ; while men of all descriptions find in dictionaries, abridgments, and journals the information they require, though not always of the purest kind. We may examine the degree of utility resulting from oral instruction in the sciences, added to that which is immediately received by books and study ; whether any advantage has resulted from the labour of compilation having become a real trade, a means of subsistence, which has multiplied the number of inferior works, but has likewise multiplied the means of acquiring common knowledge to men of small information. We may mark the influence which learned societies have exercised on the progress of the human mind, a barrier which will long be useful to oppose against ignorant pretenders and false knowledge : and lastly, we may exhibit the history of the encouragements given by governments to that progress, and the obstacles which have often been opposed to it in the same country and at the same period. We may shew what prejudices or principles of Machiavelism have directed them in this opposition to the advances of man towards truth ; what views of interested policy, or even public good,

have directed them when they have appeared, on the contrary, to be desirous of accelerating and protecting them.

THE picture of the fine arts offers to our view results of no less brilliancy. Music is become, in a certain respect, a new art; while the science of combination, and the application of numbers to the vibrations of sonorous bodies, and the oscillations of the air, have enlightened its theory. The arts of design, which formerly passed from Italy to Flanders, Spain and France, elevated themselves in this last country to the same degree that Italy carried them in the preceding epocha; where they have been supported with more reputation than in Italy itself. The art of our painters is that of Raphael and Carrachi. All the means of the art being preserved in the schools, are so far from being lost, that they have become more extended. Nevertheless, it must be admitted, that too long a time has elapsed without producing a genius which may be compared to them, to admit of this long sterility being attributed to chance. It is not because the means of art are exhausted that great success is really become difficult; it is not that nature has refused us organs equally perfect with those of the Italians of the sixth age; it is merely to the changes of politics and manners that we ought to attribute, not the decay of the art, but the mediocrity of its productions.

LITERARY productions (cultivated in Italy with less success but without having degenerated) have made such progress in the French language, as has acquired it the honor of becoming, in some sort, the universal language of Europe.

THE tragic art, in the hands of Corneille, Racine, and Voltaire, has been raised, by successive progress, to a perfection before unknown. The co-

mic art is indebted to Moliere for having speedily arrived to an elevation not yet attained by any other people.

IN England, from the commencement of the same epoch, and in a still later time in Germany, language has been rendered more perfect. The art of poetry, as well as that of prose writing, have been subjected, though with less docility than in France, to the universal rules of reason and nature, which ought to direct them. These rules are equally true for all languages and all people, though the number of men has hitherto been few who have succeeded in arriving at the knowledge of them, and rising to the just and pure taste which results from that knowledge. These rules presided over the compositions of Sophocles and Virgil, as well as those of Pope and Voltaire; they taught the Greeks and Romans, as well as the French, to be struck with the same beauties, and shocked at the same faults. We may also investigate what it is in each nation that has favoured or retarded the progress of these arts; by what causes the different kinds of poetry, or works in prose have attained in the different countries a degree of perfection so unequal; and how far these universal rules may, without offending their own fundamental principles, be modified by the manners and opinions of the people who are to possess their productions, and even by the nature of the uses to which their different species are designed. Thus, for example, a tragedy daily recited before a small number of spectators, in a theatre of confined extent, cannot follow the same practical rules as a tragedy exhibited on an immense theatre, in the solemn festivals to which the whole people was invited. We may attempt to shew, that the rules of taste possess the same generality and the same constancy, though

they are susceptible of the same modifications as the other laws of the moral and physical universe, when it is necessary to apply them to the immediate practice of a common art.

WE may shew how far the art of printing, by multiplying and disseminating even those works which are designed to be publicly read or recited, transmit them to a number of readers incomparably greater than that of the auditors. We may shew how most of the important decisions by numerous assemblies, having been determined from the previous instruction their members had received by writing, there must have resulted in the art of persuasion among the ancients and among the moderns, differences in the rules, analagous to the effect intended to be produced and the means employed; and how, lastly, in the different species of knowledge, even with the ancients, certain works were for perusal only.....such as those of history or philosophy. The facility which the invention of printing affords, to enter into a more extensive detail, and more accurate developement, must have likewise influenced the same rules.

THE progress of philosophy and the sciences have extended and favoured those of letters, and these in their turn have served to render the study of the sciences more easy, and philosophy itself more popular. They have lent mutual assistance to each other, in spite of the efforts of ignorance and folly to disunite and render them inimical..... Erudition, which a respect for human authority and ancient things seemed to have destined to support the cause of hurtful prejudices; this erudition has nevertheless, assisted in destroying them because the sciences and philosophy have enlightened it with a more legitimate criticism. It already knew the method of weighing authorities, and com-

paring them with each other, but it has at length submitted them to the tribunal of reason; it had rejected the prodigies, absurd tales, and facts contrary to probability; but, by attacking the testimony upon which they were supported, men have learned to reject them, in spite of the force of these witnesses, that they might give way to that evidence which the physical or moral improbability of extraordinary facts might carry with them.

HENCE it is seen that all the intellectual occupations of men, however differing in their object, their method, or the qualities of mind which they require, have concurred in the progress of human reason. It is the same with the entire system of the labors of men as with a well-composed work; of which the parts, though methodically distinct, must, nevertheless, be closely connected to form one single whole, and tend to one single object.

WHILE we thus take a general view of the human species, we may prove that the discovery of true methods in all the sciences; the extent of the theory they include; their application to all the objects of nature, and all the wants of man; the lines of communication established between them; the great number of those who cultivate them; and, lastly, the multiplication of printing presses, are sufficient to assure us, that none of them will hereafter descend below the point to which it has been carried. We may shew that the principles of philosophy, the maxims of liberty, the knowledge of the true rights of man, and his real interest, are spread over too many nations, and in each of those nations direct the opinions of too great a number of enlightened men, for them ever to fall again into oblivion.

WHAT fear can be entertained when we find

that the two languages the most universally extended, are, likewise, the languages of two people who possess the most extended liberty ; who have best known its principles. So that no confederacy of tyrants, nor any possible combination of policy, can prevent the rights of reason, as well as those of liberty, from being openly defended in both languages.

BUT if it be true, as every prospect assures us, that the human race shall not again relapse into its ancient barbarity ; if every thing ought to assure us against that pusillanimous and corrupt system which condemns man to eternal oscillations between truth and falsehood, liberty and servitude, we must, at the same time, perceive that the light of information is spread over a small part only of our globe ; and the number of those who possess real instruction, seems to vanish in the comparison with the mass of men consigned over to ignorance and prejudice. We behold vast countries groaning under slavery, and presenting nations in one place, degraded by the vices of civilization, so corrupt as to impede the progress of man ; and in others, still vegetating in the infancy of its early age. We perceive that the exertions of these last ages have done much for the progress of the human mind, but little for the perfection of the human species ; much for the glory of man, somewhat for his liberty, but scarcely any thing yet for his happiness. In a few directions, our eyes are struck with a dazzling light ; but thick darkness still covers an immense horizon. The mind of the philosopher reposes with satisfaction upon a small number of objects, but the spectacle of the stupidity, the slavery, the extravagance, and the barbarity of man, afflicts him still more strongly. The friend of humanity cannot receive unmixed pleasure but by

abandoning himself to the endearing hope of the future.

SUCH are the objects which ought to enter into an historical sketch of the progress of the human mind. We may endeavor, while we hold them forward, to shew more especially the influence of this progress upon the opinions and the welfare of the general mass of different nations, at the different epochas of their political existence ; to shew what truths they have known, what errors have been destroyed, what virtuous habits contracted, what new developement of their faculties has established a happier proportion between their powers and their wants : And, under an opposite point of view, what may be the prejudices to which they have been enslaved ; what religious or political superstitions have been introduced ; by what vices, of ignorance or despotism, they have been corrupted ; and to what miseries, violence or their own degradation have subjected them.

HITHERTO, political history, as well as that of philosophy and the sciences, has been merely the history of a few men. That which forms in truth the human species, the mass of families, which subsist almost entirely upon their labor, has been forgotten ; and even among that class of men who, devoted to public professions, act not for themselves but for society ; whose occupation it is to instruct, to govern, to defend, and to comfort other men, the chiefs only have fixed the attention of historians.

It is enough for the history of individuals that facts be collected, but the history of a mass of men can be founded only on observations ; and, in order to select them, and to seize the essential traits, it is requisite the historian should possess considerable information, and no less of philosophy, to make a proper use of them.

AGAIN, these observations relate to common things, which strike the eyes of all, and which every one is capable himself of knowing when he thinks proper to attend to them. Hence the greater part have been collected by travellers and foreigners, because things very trivial in the place where they exist, have become an object of curiosity to strangers. Now it unfortunately happens, that these travellers are almost always inaccurate observers ; they see objects with too much rapidity, through the medium of the prejudices of their own country, and not unfrequently by the eyes of the men of the country they run through : their conferences are held with such men as accident has connected them with ; and the answer is in almost every case, dictated by interest, party spirit, national pride, or ill-humor.

IT is not alone, therefore, to the baseness of historians, as has been justly urged against those of monarchies, that we are to attribute the want of monuments from which we may trace this most important part of the history of men.

THE defect cannot be supplied but very imperfectly by a knowledge of the laws, the practical principles of government and public economy, or by that of religion and general prejudices.

IN fact, the law as written, and the law as executed ; the principles of those who govern, and the manner in which their action is modified by the genius of those who are governed ; the institution such as it has flowed from the men who formed it, and such as it becomes when realized by practice ; the religion of books, and that of the people ; the apparent universality of prejudice, and the real reception which it obtains, may differ to such a degree, that the effects shall absolutely cease to correspond to these public and known causes.

To this part of the history of the human species, which is the most obscure, the most neglected, and for which facts offer us so few materials, it is that we should more particularly attend in this outline ; and whether an account be rendered of a new discovery, an important theory, a new system of laws, or a political revolution, the problem to be determined will consist in ascertaining what effects ought to have arisen from the will of the most numerous portion of each society. This is the true object of philosophy ; because all the intermediate effects of these same causes can be considered only as means of acting, at least upon this portion, which truly constitute the mass of the human race.

IT is by arriving at this last link of the chain, that the observation of past events, as well as the knowledge acquired by meditation, become truly useful. It is by arriving at this term, that men learn to appreciate their real titles to reputation, or to enjoy, with a well-grounded pleasure, the progress of their reason. Hence, alone, it is, that they can judge of the true improvement of the human species.

THE notion of referring every thing to this latter point, is dictated by justice and by reason ; but it may be supposed to be without foundation. The supposition, nevertheless, is not true ; and it will be enough if we prove it in this place by two striking examples.

THE possession of the common objects of consumption, however abundantly they may now satisfy the wants of man ; of those objects which the ground produces in consequence of human effort, is due to the continued exertions of industry, assisted by the light of the sciences ; and thence it follows, from history, that this possession attaches

itself to the gain of the battle of Salamis, without which the darkness of oriental despotism threatened to cover the whole of the earth. And, again, the accurate observation of the longitude, which preserves navigators from shipwreck, is indebted to a theory which, by a chain of truths, goes as far back as to discoveries made in the school of Plato, though buried for twenty centuries in perfect inutility.

TENTH EPOCH.

FUTURE PROGRESS OF MANKIND.

IF man can predict, almost with certainty, those appearances of which he understands the laws ; if, even when the laws are unknown to him, experience or the past enables him to foresee, with considerable probability, future appearances ; why should we suppose it a chimerical undertaking to delineate, with some degree of truth, the picture of the future destiny of mankind from the results of its history ? The only foundation of faith in the natural sciences is the principle, that the general laws, known or unknown, which regulate the phenomena of the universe, are regular and constant ; and why should this principle, applicable to the other operations of nature, be less true when applied to the developement of the intellectual and moral faculties of man ? In short, as opinions formed from experience, relative to the same class of objects, are the only rule by which men of soundest understanding are governed in their conduct, why should the philosopher be proscribed from supporting his conjectures upon a similar basis, provided we attribute to them no greater certainty than the number, the consistency, and the accuracy of actual observations shall authorise ?

Our hopes, as to the future condition of the human species, may be reduced to three points : the destruction of equality between different nations ; the progress of inequality in one and the same nation ; and lastly, the real improvement of man.

WILL not every nation one day arrive at the state of civilization attained by those people who are most enlightened, most free, most exempt from prejudices, as the French, for instance, and the Anglo-Americans? Will not the slavery of countries subjected to kings, the barbarity of African tribes, and the ignorance of savages gradually vanish? Is there upon the face of the globe a single spot the inhabitants of which are condemned by nature never to enjoy liberty, never to exercise their reason?

DOES the difference of knowledge, of means, and of wealth, observable hitherto in all civilized nations, between the classes into which the people constituting those nations are divided; does that inequality, which the earliest progress of society has augmented, or, to speak more properly, produced, belong to civilization itself, or to the imperfections of the social order? Must it not continually weaken, in order to give place to that actual equality, the chief end of the social art, which diminishing even the effects of the natural difference of the faculties, leaves no other inequality subsisting but what is useful to the interest of all, because it will favor civilization, instruction, and industry, without drawing after it either dependence, humiliation or poverty? In a word, will not men be continually verging towards that state, in which all will possess the requisite knowledge for conducting themselves in the common affairs of life by their own reason, and of maintaining that reason uncontaminated by prejudices; in which they will understand their rights, and exercise them according to their opinion and their conscience; in which all will be able, by the developement of their faculties, to procure the certain means of providing for their wants; lastly, in which folly and wretchedness

will be accidents, happening only now and then, and not the habitual lot of a considerable portion of society?

IN fine, may it not be expected that the human race will be meliorated by new discoveries in the sciences and the arts, and, as an unavoidable consequence, in the means of individual and general prosperity; by farther progress in the principles of conduct, and in moral practice; and lastly, by the real improvement of our faculties, moral, intellectual and physical, which may be the result either of the improvement of the instruments which increase the power and direct the exercise of those faculties, or of the improvement of our natural organization itself?

IN examining the three questions we have enumerated, we shall find the strongest reasons to believe, from past experience, from observation of the progress which the sciences and civilization have hitherto made, and from the analysis of the march of the human understanding, and the developement of its faculties, that nature has fixed no limits to our hopes.

IF we take a survey of the existing state of the globe, we shall perceive, in the first place, that in Europe the principles of the French constitution are those of every enlightened mind. We shall perceive that they are too widely disseminated, and too openly professed, for the efforts of tyrants and priests to prevent them from penetrating by degrees into the miserable cottages of their slaves, where they will soon revive those embers of good sense, and rouse that silent indignation which the habit of suffering and terror have failed totally to extinguish in the minds of the oppressed.

IF we next look at the different nations, we shall observe in each, particular obstacles opposing, or

certain dispositions favouring this revolution. We shall distinguish some in which it will be effected, perhaps slowly, by the wisdom of the respective governments; and others in which, rendered violent by resistance, the governments themselves will necessarily be involved in its terrible and rapid motions.

CAN it be supposed that either the wisdom or the senseless feuds of European nations, co-operating with the slow but certain effects of the progress of their colonies, will not shortly produce the independence of the entire new world; and that then, European population, lending its aid, will fail to civilize or cause to disappear, even without conquest, those savage nations still occupying there immense tracts of country.

RUN through the history of our projects and establishments in Africa or in Asia, and you will see our monopolies, our treachery, our sanguinary contempt for men of a different complexion or different creed, and the proselyting fury or the intrigues of our priests, destroying that sentiment of respect and benevolence which the superiority of our information and the advantages of our commerce had at first obtained.

BUT the period is doubtless approaching, when, no longer exhibiting to the view of these people corruptors only or tyrants, we shall become to them instruments of benefit, and the generous champions of their redemption from bondage.

THE cultivation of the sugar cane, which is now establishing itself in Africa, will put an end to the shameful robbery by which, for two centuries, that country has been depopulated and depraved.

ALREADY, in Great Britain, some friends of humanity have set the example; and if its Machi-

avelian government, forced to respect public reason, had not dared to oppose this measure, what may we not expect from the same spirit, when, after the reform of an object and venal constitution, it shall become worthy of a humane and generous people? Will not France be eager to imitate enterprises which the philanthropy and the true interest of Europe will equally have dictated? Spices are already introduced into the French islands, Guiana, and some English settlements; and we shall soon witness the fall of that monopoly which the Dutch have supported by such a complication of perfidy, of oppression, and of crimes. The people of Europe will learn in time that exclusive and chartered companies are but a tax upon the respective nation, granted for the purpose of placing a new instrument in the hands of its government for the maintenance of tyranny.

THEN will the inhabitants of the European quarter of the world, satisfied with an unrestricted commerce, too enlightened as to their own rights to sport with the rights of others, respect that independence which they have hitherto violated with such audacity. Then will their establishments, instead of being filled by the creatures of power, who, availing themselves of a place or privilege, hasten, by rapine and perfidy, to amass wealth, in order to purchase, on their return, honors and titles, be peopled with industrious men, seeking in those happy climates that ease and comfort which in their native country eluded their pursuit. There will they be retained by liberty, ambition having lost its allurements; and those settlements of robbers will then become colonies of citizens, by whom will be planted in Africa and Asia the principles and example of the freedom, reason, and illumination of Europe. To those monks also,

who inculcate on the natives of the countries in question the most shameful superstitions only, and who excite disgust by menacing them with a new tyranny, will succeed men of integrity and benevolence, anxious to spread among these people truths useful to their happiness, and to enlighten them upon their interests as well as their rights: for the love of truth is also a passion; and when it shall have at home no gross prejudices to combat, no degrading errors to dissipate, it will naturally extend its regards, and convey its efforts to remote and foreign climes.

THESE immense countries will afford ample scope for the gratification of this passion. In one place will be found a numerous people, who, to arrive at civilization, appear only to wait till we shall furnish them with the means; and, who, treated as brothers by Europeans, would instantly become their friends and disciples. In another will be seen nations crouching under the yoke of sacred despots or stupid conquerors, and who, for so many ages have looked for some friendly hand to deliver them: while a third will exhibit either tribes nearly savage, excluded from the benefits of superior civilization by the severity of their climate, which deters those who might otherwise be disposed to communicate these benefits from making the attempt; or else conquering hordes, knowing no law but force, no trade but robbery. The advances of these two last classes will be more slow, and accompanied with more frequent storms; it may even happen that, reduced in numbers in proportion as they see themselves repelled by civilized nations, they will in the end wholly disappear, or their scanty remains become blended with their neighbors.

WE might shew that these events will be the inevitable consequence not only of the progress of Europe, but of that freedom which the republic of France, as well as of America, have it in their power, and feel it to be their interest, to restore to the commerce of Africa and Asia: and that they must also necessarily result alike, whether from the new policy of European nations, or their obstinate adherence to mercantile prejudices.

A SINGLE combination, a new invasion of Asia by the Tartars, might be sufficient to frustrate this revolution; but it may be shewn that such combination is henceforth impossible to be effected..... Meanwhile every thing seems to be preparing the speedy downfall of the religions of the East, which partaking of the abjectness of their ministers, left almost exclusively to the people, and, in the majority of countries, considered by powerful men as political institutions only, no longer threaten to retain human reason in a state of hopeless bondage, and in the eternal shakles of infancy.

THE march of these people will be less slow and more sure than ours has been, because they will derive from us that light which we have been obliged to discover, and because for them to acquire the simple truths and infallible methods which we have obtained after long wandering in the mazes of error, it will be sufficient to seize upon their developements and proofs in our discourses and publications. If the progress of the Greeks was lost upon other nations, it was for want of a communication between the people; and to the tyrannical domination of the Romans must the whole blame be ascribed. But, when mutual wants shall have drawn closer the intercourse and ties of all mankind; when the most powerful nations shall

have established into political principles equality between societies as between individuals, and respect for the independence of feeble states, as well as compassion for ignorance and wretchedness; when to the maxims which bear heavily upon the spring of the human faculties, those shall succeed which favor their action and energy, will there still be reason to fear that the globe will contain spaces inaccessible to knowledge, or that the pride of despotism will be able to oppose barriers to truth that will long be insurmountable.

THEN will arrive the moment in which the sun will observe in its course free nations only, acknowledging no other master than their reason; in which tyrants and slaves, priests and their stupid or hypocritical instruments, will no longer exist but in history and upon the stage; in which our only concern will be to lament their past victims and dupes, and, by the recollection of their horrid enormities, to exercise a vigilant circumspection, that we may be able instantly to recognise and effectually to stifle by the force of reason, the seeds of superstition and tyranny, should they ever presume again to make their appearance upon the earth.

IN tracing the history of societies we have had occasion to remark, that there frequently exists a considerable distinction between the rights which the law acknowledges in the citizens of a state, and those which they really enjoy; between the equality established by political institutions, and that which takes place between the individual members; and that to this disproportion was chiefly owing the destruction of liberty in the ancient republics, the storms which they had to encounter, and the weakness that surrendered them into the power of foreign tyrants.

THREE principal causes may be assigned for these distinctions : inequality of wealth, inequality of condition between him whose resources of subsistence are secured to himself and descendable to his family, and him whose resources are annihilated with the termination of his life, or rather of that part of his life in which he is capable of labour; and lastly, inequality of instruction.

IT will therefore behove us to shew, that these three kinds of real inequality must continually diminish ; but without becoming absolutely extinct, since they have natural and necessary causes, which it would be absurd as well as dangerous to think of destroying ; nor can we attempt even to destroy entirely their effects, without opening at the same time more fruitful sources of inequality, and giving to the rights of man a more direct and more fatal blow.

IT is easy to prove that fortunes naturally tend to equality, and that their extreme disproportion either could not exist, or would quickly cease, if positive law had not introduced factitious means of amassing and perpetuating them ; if an entire freedom of commerce and industry were brought forward to supersede the advantages which prohibitory laws and fiscal rights necessarily give to the rich over the poor ; if duties upon every sort of transfer and convention, if prohibitions to certain kinds, and the tedious and expensive formalities prescribed to other kinds ; if the uncertainty and expence attending their execution had not palsied the efforts of the poor, and swallowed up their little accumulations ; if political institutions had not laid certain prolific sources of opulence open to a few, and shut them against the many ; if avarice and the other prejudices incident to an advanced age, did not preside over marriages ; in fine, if the sim-

licity of our manners and the wisdom of our institutions were calculated to prevent riches from operating as the means of gratifying vanity or ambition, at the same time that an ill-judged austerity, by forbidding us to render them a means of costly pleasures should not force us to preserve the wealth that had once been accumulated.

LET us compare, in the enlightened nations of Europe, the actual population with the extent of territory; let us observe, amidst the spectacle of their culture and their industry, the way in which labour and the means of subsistence are distributed, and we shall see that it will be impossible to maintain these means in the same extent, and of consequence to maintain the same mass of population, if any considerable number of individuals cease to have, as now, nothing but their industry, and the pittance necessary to set it at work, or to render its profit equal to the supplying their own wants and those of their family. But neither this industry, nor the scanty reserve we have mentioned, can be perpetuated, except so long as the life and health of each head of a family is perpetuated. Their little fortune therefore is at best an annuity, but in reality with features of precariousness that an annuity wants: and from hence results a most important difference between this class of society and the class of men whose resources consist either of a landed income, or the interest of a capital, which depends little upon personal industry, and is therefore not subject to similar risks.

THERE exists then a necessary cause of inequality, of dependence, and even of penury, which menaces without ceasing the most numerous and active class of our societies.

THIS inequality, however, may be in great measure destroyed, by setting chance against chance,

in securing to him who attains old age a support, arising from his savings, but augmented by those of other persons, who, making a similar addition to a common stock, may happen to die before they shall have occasion to recur to it; in procuring, by a like regulation, an equal resource for women who may lose their husbands, or children who may lose their father; lastly, in preparing for those youths, who arrive at an age to be capable of working for themselves, and of giving birth to a new family, the benefit of a capital sufficient to employ their industry, and increased at the expence of those whom premature death may cut off before they arrive at that period. To the application of mathematics to the probabilities of life and the interest of money, are we indebted for the hint of these means, already employed with some degree of success, though they have not been carried to such extent, or employed in such variety of forms, as would render them truly beneficial, not merely to a few families, but to the whole mass of society, which would thereby be relieved from that periodical ruin observable in a number of families, the ever-flowing source of corruption and depravity.

THESE establishments, which may be formed in the name of the social power, and become one of its greatest benefits, might also be the result of individual associations, which may be instituted without danger, when the principles by which the establishments ought to be organised, shall have become more popular, and the errors, by which a great number of such associations have been destroyed, shall cease to be an object of apprehension.

WE may enumerate other means of securing the equality in question, either by preventing credit from continuing to be a privilege exclusively at-

tached to large fortunes, without at the same time placing it upon a less solid foundation; or by rendering the progress of industry and the activity of commerce more independent of the existence of great capitalists: and for these resources also we shall be indebted to the science of calculation.

THE equality of instruction we can hope to attain, and with which we ought to be satisfied, is that which excludes every species of dependence, whether forced or voluntary. We may exhibit, in the actual state of human knowledge, the easy means by which this end may be attained even for those who can devote to study but a few years of infancy, and, in subsequent life, only some occasional hours of leisure. We might shew, that by a happy choice of the subjects to be taught, and of the mode of inculcating them, the entire mass of a people may be instructed in every thing necessary for the purposes of domestic economy; for the transaction of their affairs; for the free development of their industry and their faculties; for the knowledge, exercise and protection of their rights; for a sense of their duties, and the power of discharging them; for the capacity of judging both their own actions, and the actions of others, by their own understanding; for the acquisition of all the delicate or dignified sentiments that are an honor to humanity; for freeing themselves from a blind confidence in those to whom they may entrust the care of their interests, and the security of their rights; for chusing and watching over them, so as no longer to be the dupes of those popular errors that torment and way-lay the life of man with superstitious fears and chimerical hopes; for defending themselves against prejudices by the sole energy of reason; in fine, for escaping from the delusions of imposture, which would spread snares

for their fortune, their health, their freedom of opinion and of conscience, under the pretext of enriching, of healing, and of saving them.

THE inhabitants of the same country being then no longer distinguished among themselves by the alternate use of a refined or vulgar language; being equally governed by their own understandings; being no more confined to the mechanical knowledge of the processes of the arts, and the mere routine of a profession; no more dependent in the most trifling affairs, and for the slightest information, upon men of skill, who, by a necessary assendancy, controul and govern, a real equality must be the result; since the difference of talents and information can no longer place a barrier between men whose sentiments, ideas, and phraseology are capable of being mutually understood, of whom the one part may desire to be instructed, but cannot need to be guided by the other; of whom the one part may delegate to the other the office of a rational government, but cannot be forced to regard them with blind and unlimited confidence.

THEN it is that this superiority will become an advantage even for those who do not partake of it since it will exist not as their enemy, by as their friend. The natural difference of faculties between men whose understandings have not been cultivated, produces, even among savages, empirics and dupes, the one skilled in delusion, the others easy to be deceived: the same difference will doubtless exist among a people where instruction shall be truly general; but it will be here between men of exalted understandings and men of sound minds, who can admire the radiance of knowledge, without suffering themselves to be dazzled by it; between talents and genius on the one hand, and on the other the good sense that knows how to appreciate and enjoy them: and should this difference be even

greater in the latter case, comparing the force and extent of the faculties only, still would the effects of it not be the less imperceptible in the relations of men with each other, in whatever is interesting to their independence or their happiness.

THE different causes of equality we have enumerated do not act distinctly and apart ; they unite, they incorporate, they support one another ; and from their combined influence results an action proportionably forcible, sure, and constant. If instruction become more equal, industry thence acquires greater equality, and from industry the effect is communicated to fortunes ; and equality of fortunes necessarily contributes to that of instruction, while equality of nations, like that established between individuals, have also a mutual operation upon each other.

IN fine, instruction, properly directed, corrects the natural inequality of the faculties, instead of strengthening it, in like manner as good laws remedy the natural inequality of the means of subsistence ; or as, in societies whose institutions shall have effected this equality, liberty, though subjected to a regular government, will be more extensive, more complete, than in the independence of savage life. Then has the social art accomplished its end, that of securing and extending for all the enjoyment of the common rights which impartial nature has bequeathed to all.

THE advantages that must result from the state of improvement, of which I have proved we may almost entertain the certain hope, can have no limit but the absolute perfection of the human species, since, in proportion as different kinds of equality shall be established as to the various means of providing for our wants, as to a more universal instruction, and a more entire liberty, the more real will be this equality, and the nearer will it ap-

proach towards embracing every thing truly important to the happiness of mankind.

IT is then by examining the progression and the laws of this perfection, that we can alone arrive at the knowledge of the extent or boundary of our hopes.

IT has never yet been supposed, that all the facts of nature, and all the means of acquiring precision in the computation and analysis of those facts, and all the connections of objects with each other, and all the possible combinations of ideas, can be exhausted by the human mind. The mere relations of magnitude, the combinations, quantity and extent of this idea alone, form already a system too immense for the mind of man ever to grasp the whole of it; a portion, more vast than that which he may have penetrated, will always remain unknown to him. It has, however, been imagined, that, as man can know a part only of the objects which the nature of his intelligence permits him to investigate, he must at length reach the point at which, the number and complication of those he already knows having absorbed all his powers, farther progress will become absolutely impossible.

BUT, in proportion as facts are multiplied, man learns to class them, and reduce them to more general facts, at the same time that the instruments and methods for observing them, and registering them with exactness, acquire a new precision: in proportion as relations more multifarious between a greater number of objects are discovered, man continues to reduce them to relations of a wider denomination, to express them with greater simplicity, and to present them in a way which may enable a given strength of mind, with a given quantity of attention, to take in a greater number than

before : in proportion as the understanding embraces more complicated combinations, a simple mode of announcing these combinations renders them more easy to be treated. Hence it follows that truths, the discovery of which was accompanied with the most laborious efforts, and which at first could not be comprehended but by men of the severest attention, will, after a time, be unfolded and proved in methods that are not above the efforts of an ordinary capacity. And thus should the methods that led to new combinations be exhausted, should their applications to questions, still unresolved, demand exertions greater than the time or the powers of the learned can bestow, more general methods, means more simple would soon come to their aid, and open a farther career to genius. The energy, the real extent of the human intellect, may remain the same : but the instruments which it can employ will be multiplied and improved ; but the language which fixes and determines the ideas will acquire more precision and compass ; and it will not be here, as in the science of mechanics, where, to increase the force, we must diminish the velocity ; on the contrary, the methods by which genius will arrive at the discovery of new truths, augment at once both the force and rapidity of its operations.

In a word, these changes being themselves the necessary consequences of additional progress in the knowledge of truths of detail, and the cause which produces a demand for new resources, producing at the same time the means of supplying them, it follows that the actual mass of truths appertaining to the sciences of observation, calculation and experiment, may be perpetually augmented, and that without supposing the faculties of man to possess a force and activity, and a scope of action greater than before.

By applying these general reflections to the different sciences, we might exhibit, respecting each, examples of this progressive improvement, which would remove all possibility of doubt as to the certainty of the further improvement that may be expected. We might indicate particularly in those which prejudice considers as nearest to being exhausted, the marks of an almost certain and early advance. We might illustrate the extent, the precision, the unity which must be added to the system comprehending all human knowledge, by a more general and philosophical application of the science of calculation to the individual branches of which that system is composed. We might shew how favorable to our hopes a more universal instruction would prove, by which a greater number of individuals would acquire the elementary knowledge that might inspire them with a taste for a particular kind of study;—and how much these hopes would be further heightened if this application to study were to be rendered still more extensive by a more general ease of circumstances. At present in the most enlightened countries, scarcely do one in fifty of those whom nature has blessed with talents receive the necessary instruction for the development of them; how different would be the proportion in the case we are supposing? and of consequence how different the number of men destined to extend the horizon of the sciences?

We might shew how much this equality of instruction, joined to the national equality we have supposed to take place, would accelerate those sciences, the advancement of which depends upon observations repeated in a greater number of instances, and extending over a larger portion of territory; how much benefit would be derived therefrom to mineralogy, botany, zoology, and the doc-

trine of meteors ; in short, how infinite the difference between the feeble means hitherto enjoyed by these sciences, and which yet have led to useful and important truths, and the magnitude of those which man would then have it in his power to employ.

LASTLY, we might prove that, from the advantage of being cultivated by a greater number of persons, even the progress of those sciences, in which discoveries are the fruit of individual meditation, would, also, be considerably advanced by means of minuter improvements, not requiring the strength of intellect, necessary for inventions, but that present themselves to the reflection of the least profound understandings.

IF we pass to the progress of the arts, those arts particularly the theory of which depends on these very same sciences, we shall find that it can have no inferior limits ; that their processes are susceptible of the same improvement, the same simplifications, as the scientific methods ; that instruments, machines, looms, will add every day to the capabilities and skill of man....will augment at once the excellence and precision of his works, while they will diminish the time and labor necessary for executing them ; and that then will disappear the obstacles that still oppose themselves to the progress in question, accidents which will be foreseen and prevented ; and lastly, the unhealthiness at present attendant upon certain operations, habits and climates.

A SMALLER portion of ground will then be made to produce a proportion of provisions of higher value or greater utility ; a greater quantity of enjoyment will be procured at a smaller expence of consumption ; the same manufactured or artificial commodity will be produced at a smaller expence

of raw materials, or will be stronger and more durable; every soil will be appropriated to productions which will satisfy a greater number of wants with the least labor, and taken in the smallest quantities. Thus the means of health and frugality will be increased, together with the instruments in the arts of production, of curing commodities and manufacturing their produce, without demanding the sacrifice of one enjoyment by the consumer.

Thus, not only the same species of ground will nourish a greater number of individuals, but each individual, with a less quantity of labor, will labor more successfully, and be surrounded with greater conveniences.

It may, however, be demanded, whether, amidst this improvement in industry and happiness, where the wants and faculties of men will continually become better proportioned, each successive generation possess more various stores, and of consequence in each generation the number of individuals be greatly increased; it may, I say, be demanded, whether these principles of improvement and increase may not, by their continual operation, ultimately lead to degeneracy and destruction? Whether the number of inhabitants in the universe at length exceeding the means of existence, there will not result a continual decay of happiness and population, and a progress towards barbarism, or at least a sort of oscillation between good and evil? Will not this oscillation, in societies arrived at this epoch, be a perennial source of periodical calamity and distress? In a word, do not these considerations point out the limit at which all farther improvement will become impossible, and consequently the perfectibility of man arrive at a period which in the immensity of ages it may attain, but which it can never pass?

THERE is, doubtless, no individual that does not perceive how very remote from us will be this period : but must it one day arrive ? It is equally impossible to pronounce on either side respecting an event, which can only be realized at an epoch when the human species will necessarily have acquired a degree of knowledge, of which our shortsighted understandings can scarcely form an idea. And who shall presume to foretel to what perfection the art of converting the elements of life into substances fitted for our use, may, in a progression of ages, be brought ?

BUT supposing the affirmative, supposing it actually to take place, there would result from it nothing alarming, either to the happiness of the human race, or its indefinite perfectibility ; if we consider, that, prior to this period, the progress of reason will have walked hand in hand with that of the sciences ; that the absurd prejudices of superstition will have ceased to infuse into morality a harshness that corrupts and degrades, instead of purifying and exalting it ; that men will then know, that the duties they may be under relative to propagation will consist not in the question of giving *existence* to a greater number of beings, but *happiness* ; will have for their object, the general welfare of the human species ; of the society in which they live ; of the family to which they are attached ; and not the puerile idea of encumbering the earth with useless and wretched mortals. Accordingly, there might then be a limit to the possible mass of provision, and of consequence to the greatest possible population, without that premature destruction, so contrary to nature and to social prosperity, of a portion of the beings who may have received life, being the result of those limits.

As the discovery, or rather the accurate solution of the first principles of metaphysics, morals, and politics, is still recent; and as it has been preceded by the knowledge of a considerable number of truths of detail, the prejudice, that they have thereby arrived at their highest point of improvement, becomes easily established in the mind; and men suppose that nothing remains to be done, because there are no longer any gross errors to destroy, or fundamental truths to establish.

BUT it requires little penetration to perceive how imperfect is still the developement of the intellectual and moral faculties of man; how much farther the sphere of his duties, including therein the influence of his actions upon the welfare of his fellow creatures and of the society to which he belongs, may be extended by a more fixed, a more profound and more accurate observation of that influence; how many questions still remain to be solved, how many social ties to be examined, before we can ascertain the precise catalogue of the individual rights of man, as well as of the rights which the social state confers upon the whole community with regard to each member. Have we even ascertained with any precision the limits of these rights, whether as they exist between different societies, or in any single society, over its members, in cases of division and hostility; or, in fine, the rights of individuals, their spontaneous unions in the case of a primitive formation, or their separations when separation becomes necessary?

IF we pass on to the theory which ought to direct the application of these principles, and serve as the basis of the social art, do we not see the necessity of acquiring an exactness of which first truths, from their general nature, are not suscep-

tible? Are we so far advanced as to consider justice, or a proved and acknowledged utility and not vague, uncertain, and arbitrary views of pretended political advantages, as the foundation of all institutions of law? Among the variety, almost infinite, of possible systems, in which the general principles of equality and natural rights should be respected, have we yet fixed upon the precise rules of ascertaining with certainty those which best secure the preservation of these rights, which afford the freest scope for their exercise and enjoyment, which promote most effectually the peace and welfare of individuals, and the strength, repose, and prosperity of nations?

THE application of the arithmetic of combinations and probabilities to these sciences, promises an improvement by so much the more considerable, as it is the only means of giving to their results an almost mathematical precision, and of appreciating their degree of certainty or of probability. The facts upon which these results are built may, indeed without calculation, and by a glance only, lead to some general truths; teach us whether the effects produced by such a cause have been favorable or the reverse: but if these facts have neither been counted nor estimated; if these effects have not been the object of an exact admeasurement, we cannot judge of the quantity of good or evil they contain; if the good or evil nearly balance each other, nay, if the difference be not considerable, we cannot pronounce with certainty to which side the balance inclines. Without the application of this arithmetic, it would be almost impossible to chuse, with sound reason, between two combinations proposing to themselves the same end, when their advantages are not distinguished by any considerable difference. In fine, without this alliance, these scien-

ees would remain forever gross and narrow, for want of instruments of sufficient polish to lay hold of the subtlety of truth....for want of machines sufficiently accurate to sound the bottom of the well where it conceals its wealth.

MEANWHILE this application, notwithstanding the happy efforts of certain geometers, is still, if I may so speak, in its first rudiments; and to the following generations must it open a source of intelligence inexhaustible as calculation itself, or as the combinations, analogies, and facts that may be brought within the sphere of its operations.

THERE is another species of progress, appertaining to the sciences in question, equally important; I mean the improvement of their language, at present so vague and so obscure. To this improvement must they owe the advantage of becoming popular, even in their first elements. Genius can triumph over these inaccuracies, as over other obstacles; it can recognise the features of truth, in spite of the mask that conceals or disfigures them. But how is the man who can devote but a few leisure moments to instruction to do this? how is he to acquire and retain the most simple truths, if they be disguised by an inaccurate language? The fewer ideas he is able to collect and combine, the more requisite it is that they be just and precise. He has no fund of truths stored up in his mind, by which to guard himself against error; nor is his understanding so strengthened and refined by long exercise, that he can catch those feeble rays of light which escape under the obscure and ambiguous dress of an imperfect and vicious phraseology.

IT will be impossible for men to become enlightened upon the nature and developement of their moral sentiments, upon the principles of morality, upon the motives for conforming their conduct to

those principles, and upon their interests, whether relative to their individual or social capacity, without making, at the same time an advancement in moral practice, not less real than that of the science itself. Is not a mistaken interest the most frequent cause of actions contrary to the general welfare? Is not the impetuosity our passions the continual result, either of habits to which we addict ourselves from a false calculation, or of ignorance of the means by which to resist their first impulse, to divert, govern, and direct their action.

Is not the practice of reflecting upon our conduct; of trying it by the touchstone of reason and conscience; of exercising those humane sentiments which blend our happiness with that of others, the necessary consequence of the well directed study of morality, and of a greater equality in the conditions of the social compact? Will not that consciousness of his own dignity, appertaining to the man who is free, that system of education built upon a more profound knowledge of our moral constitution, render common to almost every man those principles of a strict and unsullied justice, those habitual propensities of an active and enlightened benevolence, of a delicate and generous sensibility, of which nature has planted the seeds in our hearts, and which wait only for the genial influence of knowledge and liberty to expand and to fructify? In manner as the mathematical and physical sciences tend to improve the arts that are employed for our most simple wants, so is it not equally in the necessary order of nature that the moral and political sciences should exercise a similar influence upon the motives that direct our sentiments and our actions.

WHAT is the object of the improvement of laws and public institutions, consequent upon the pro-

gress of these sciences, but to reconcile, to approximate, to blend and unite into one mass the common interest of each individual with the common interest of all? What is the end of the social art, but to destroy the opposition between these two apparently jarring sentiments? And will not the constitution and laws of that country best accord with the intentions of reason and nature where the practice of virtue shall be least difficult, and the temptations to deviate from her paths least numerous and least powerful.

WHAT vicious habit can be mentioned, what practice contrary to good faith, what crime even, the origin and first cause of which may not be traced in the legislation, institutions, and prejudices of the country in which we observe such habit, such practice, or such crime to be committed?

IN short, does not the well-being, the prosperity, resulting from the progress that will be made by the useful arts, in consequence of their being founded upon a sound theory, resulting, also, from an improved legislation, built upon the truths of the political sciences, naturally dispose men to humanity, to benevolence and to justice? Do not all the observations, in fine, which we proposed to develop in this work prove, that the moral goodness of man, the necessary consequence of his organization, is, like all his other faculties, susceptible of an indefinite improvement? and that nature has connected, by a chain which cannot be broken, truth, happiness, and virtue.

AMONG those causes of human improvement that are of most importance to the general welfare, must be included, the total annihilation of the prejudices which have established between the sexes an inequality of rights, fatal even to the party which it favors. In vain might we search for mo-

tives by which to justify this principle, in difference of physical organization, of intellect, or of moral sensibility. It had at first no other origin but abuse of strength, and all the attempts which have since been made to support it are idle sophisms.

AND here we may observe, how much the abolition of the usages authorised by this prejudice, and of the laws which it has dictated, would tend to augment the happiness of families; to render common the virtues of domestic life, the fountain-head of all the others; to favor instruction, and especially, to make it truly general, either because it would be extended to both sexes with greater equality, or because it cannot become general, even to men, without the concurrence of the mothers of families. Would not this homage, so long in paying, to the divinities of equity and good sense, put an end to a too fertile principle of injustice, cruelty, and crime, by superseding the opposition hitherto maintained between that natural propensity, which is, of all others the most imperious, and most difficult to subdue, and the interests of man, or the duties of society? Would it not produce, what has hitherto been a mere chimera, national manners of a nature mild and pure, formed, not by imperious privations, by hypocritical appearances, by reserves imposed by the fear of shame or religious terrors, but by habits freely contracted, inspired by nature and avowed by reason?

THE people being more enlightened, and having resumed the right of disposing for themselves of their blood and their treasure, will learn by degrees to regard war as the most dreadful of all calamities, the most terrible of all crimes. The first wars that will be superseded, will be those into which the usurpers of sovereignty have hitherto

drawn their subjects for the maintenance of rights pretendedly hereditary.

NATIONS will know, that they cannot become conquerors without losing their freedom ; that perpetual confederations are the only means of maintaining their independence ; that their object should be security, and not power. By degrees commercial prejudices will die away ; a false mercantile interest will lose the terrible power of imbruing the earth with blood, and of ruining nations under the idea of enriching them. As the people of different countries will at last be drawn into closer intimacy, by the principles of politics and morality, as each, for its own advantage, will invite foreigners to an equal participation of the benefits which it may have derived either from nature or its own industry, all the causes which produce, envenom, and perpetuate national animosities, will one by one disappear, and will no more furnish to warlike insanity either fuel or pretext.

INSTITUTIONS, better combined than those projects of perpetual peace which have occupied the leisure and consoled the heart of certain philosophers, will accelerate the progress of this fraternity of nations ; and wars, like assassinations, will be ranked in the number of those daring atrocities, humiliating and lothsome to nature ; and which fix upon the country or the age whose annals are stained with them, an indelible opprobrium.

IN speaking of the fine arts in Greece, in Italy, and in France, we have observed, that it is necessary to distinguish, in their productions, what really belongs to the progress of the art, and what is due only to the talent of the artist. And here let us enquire what progress may still be expected, whether, in consequence of the advancement of

philosophy and the sciences, or from an additional store of more judicious and profound observations relative to the object, the effects and the means of these arts themselves; or lastly, from the removal of the prejudices that have contracted their sphere, and that still retain them in the shackles of authority, from which the sciences and philosophy have at length freed themselves. Let us ask, whether, as has frequently been supposed, these means may be considered as exhausted? or, if not exhausted, whether, because the most sublime and pathetic beauties have been seized; the most happy subjects treated; the most simple and striking combinations employed; the most prominent and general characters exhibited; the most energetic passions, their true expressions and genuine features delineated; the most commanding truths, the most brilliant images displayed; that therefore, the arts are condemned to an eternal and monotonous imitation of their first models?

WE shall perceive that this opinion is merely a prejudice, derived from the habit which exists among men of letters and artists of appreciating the merits of men, instead of giving themselves up to the enjoyment to be received from their works..... The second-hand pleasure which arises from comparing the productions of different ages and countries, and from contemplating the energy and success of the efforts of genius, will perhaps be lost; but, in the mean time, the pleasure arising from the productions considered in themselves, and flowing from their absolute perfection, need not be less lively, though the improvement of the author may less excite our astonishment. In proportion as excellent productions shall multiply, every successive generation of men will direct its attention to those which are the most perfect, and the rest will insen-

sibly fall into oblivion; while the more simple and palpable traits, which were seized upon by those who first entered the field of invention, will not the less exist for our posterity, though they shall be found only in the latest productions.

THE progress of the sciences secures the progress of the art of instruction, which again accelerates in its turn that of the sciences; and this reciprocal influence, the action of which is incessantly increased, must be ranked in the number of the most prolific and powerful causes of the improvement of the human race. At present, a young man upon finishing his studies and quitting our schools, may know more of the principles of mathematics than Newton acquired by profound study, or discovered by the force of his genius, and may exercise the instrument of calculation with a readiness which at that period was unknown. The same observation, with certain restrictions, may be applied to all the sciences. In proportion as each shall advance, the means of compressing, within a smaller circle, the proofs of a greater number of truths, and of facilitating their comprehension, will equally advance. Thus, notwithstanding future degrees of progress, not only will men of equal genius find themselves, at the same period of life, upon a level with the actual state of science, but respecting every generation, what may be acquired in a given space of time, by the same strength of intellect and the same degree of attention, will necessarily increase, and the elementary part of each science, that part which every man may attain, becoming more and more extended, will include, in a manner more complete, the knowledge necessary for the direction of every man in the common occurrences of life, and for the free and independent exercise of his reason.

IN the political sciences there is a description of truths, which particularly in free countries (that is, in all countries in certain generations), can only be useful when generally known and avowed. Thus, the influence of these sciences upon the freedom and prosperity of nations, must, in some sort, be measured by the number of those truths that, in consequence of elementary instruction, shall pervade the general mind: and thus, as the growing progress of this elementary instruction is connected with the necessary progress of the sciences, we may expect a melioration in the doctrines of the human race which may be regarded as indefinite, since it can have no other limits than those of the two species of progress on which it depends.

WE have still two other means of general application to consider, and which must influence at once both the improvement of the art of instruction and that of the sciences. One is a more extensive and more perfect adoption of what may be called technical methods; the other, the institution of an universal language.

By technical methods I understand, the art of uniting a great number of objects in an arranged and systematic order, by which we may be enabled to perceive at a glance their bearings and connections, seize in an instant their combinations, and form from them more readily new combinations.

LET us develope the principles, let us examine the utility of this art, as yet in its infancy, and we shall find that, when improved and perfected, we might derive from it, either the advantage of possessing within the narrow compass of a picture, what it would be often difficult for volumes to explain to us so readily and so well; or the means, still more valuable, of presenting isolated facts in

a disposition and view best calculated to give us their general results. We shall perceive how, by means of a small number of these pictures or tables, the use of which may be easily learned, men who have not been able to appropriate such useful details and elementary knowledge as may apply to the purposes of common life, may turn to them at the shortest notice ; and how elementary knowledge itself, in all those sciences where this knowledge is founded either upon a regular code of truths or a series of observations and experiments, may hereby be facilitated.

AN universal language is that which expresses by signs, either the direct objects, or those well-defined collections constituted of simple and general ideas, which are to be found or may be introduced equally in the understandings of all mankind; or lastly, the general relations of these ideas, the operations of the human mind, the operations peculiar to any science, and the mode of process in the arts. Thus, such persons as shall have become masters of these signs, the method of combining and the rules for constructing them, will understand what is written in this language, and will read it with similar facility in the language of their own country, whatever it may happen to be.

It is apparent, that this language might be employed to explain either the theory of a science or the rules of an art ; to give an account of a new experiment or a new observation, the acquisition of a scientific truth, the invention of a method, or the discovery of a process ; and that, like algebra, when obliged to make use of new signs, those already known would afford the means of ascertaining their value.

A LANGUAGE like this has not the inconvenience of a scientific idiom, different from the ver-

acular tongue. We have before observed, that the use of such an idiom necessarily divides societies into two extremely unequal classes; the one composed of men, understanding the language, and, therefore, in possession of the key to the sciences; the other of those who, incapable of learning it, find themselves reduced almost to an absolute impossibility of acquiring knowledge. On the contrary, the universal language we are supposing, might be learned, like the language of algebra, with the science itself; the sign might be known at the same instant with the object, the idea, or the operation which it expresses. He who, having attained the elements of a science, should wish to prosecute farther his enquiries, would find in books, not only truths that he could understand, by means of those signs, of which he already knows the value, but the explanation of the new signs of which he has need in order to ascend to higher truths.

IT might be shown that the formation of such a language, if confined to the expressing of simple and precise propositions, like those which form the system of a science, or the practice of an art, would be the reverse of chimerical; that its execution, even at present, would be extremely practicable as to a great number of objects; and that the chief obstacle that would stand in the way of extending it to others, would be the humiliating necessity of acknowledging how few precise ideas, and accurately defined notions, understood exactly in the same sense by every mind, we really possess.

IT might be shown that this language, improving every day, acquiring incessantly greater extent, would be the means of giving to every object that comes within the reach of human intelligence, a rigor and precision that would facilitate the knowledge of truth, and render error almost impossible.

Then would the march of every science be as infallible as that of the mathematics, and the propositions of every system acquire, as far as nature will admit, geometrical demonstration and certainty.

ALL the causes which contribute to the improvement of the human species, all the means we have enumerated that insure its progress, must, from their very nature, exercise an influence always active, and acquire an extent forever increasing..... The proofs of this have been exhibited, and from their developement in the work itself they will derive additional force : accordingly we may already conclude, that the perfectibility of man is indefinite. Meanwhile we have hitherto considered him as possessing only the same natural faculties, as endowed with the same organization. How much greater would be the certainty, how much wider the compass of our hopes, could we prove that these natural faculties themselves, that this very organization, are also susceptible of melioration? And this is the last question we shall examine.

THE organic perfectibility or deterioration of the classes as the vegetable, or species of the animal kingdom, may be regarded as one of the general laws of nature.

THIS law extends itself to the human race ; and it cannot be doubted that the progress of the sanative art, that the use of more wholesome food and more comfortable habitations, that a mode of life which shall develop the physical powers by exercise, without at the same time impairing them by excess ; in fine, that the destruction of the two most active causes of deterioration, penury and wretchedness on the one hand, and enormous wealth on the other, must necessarily tend to prolong the common duration of man's existence, and secure him a more constant health and a more re-

best constitution. It is manifest that the improvement of the practice of medicine, become more efficacious in consequence of the progress of reason and the social order, must in the end put a period to transmissible or contagious disorders, as well to those general maladies resulting from climate, aliments, and the nature of certain occupations. Nor would it be difficult to prove that this hope might be extended to almost every other malady, of which it is probable we shall hereafter discover the most remote causes. Would it even be absurd to suppose this quality of melioration in the human species as susceptible of an indefinite advancement; to suppose that a period must one day arrive when death will be nothing more than the effect either of extraordinary accidents, or of the slow and gradual decay of the vital powers; and that the duration of the middle space, of the interval between the birth of man and this decay will itself have no assignable limit? Certainly man will not become immortal; but may not the distance between the moment in which he draws his first breath, and the common term when, in the course of nature, without malady or accident, he finds it impossible any longer to exist, be necessarily protracted? As we are now speaking of a progress that is capable of being represented with precision, by numerical quantities or by lines, we shall embrace the opportunity of explaining the two meanings that may be affixed to the word *indefinite*.

In reality, this middle term of life, which in proportion as men advance upon the ocean of futurity, we have supposed incessantly to increase, may receive additions either in conformity to a law by which, though approaching continually an illimitable extent, it could never possibly arrive at it; or a law by which, in the immensity of ages, it may acquire a greater extent than any determinate qual-

tity whatever that may be assigned as its limit. In the latter case, this duration of life is indefinite in the strictest sense of the word, since there exist no bounds on this side of which it must necessarily stop. And in the former, it is equally indefinite to us ; if we cannot fix the term, it may forever approach, but can never surpass ; particularly if, knowing only that it can never stop, we are ignorant in which of the two senses the term indefinite is applicable to it : and this is precisely the state of the knowledge we have as yet acquired relative to the perfectibility of the species.

Thus, in the instance we are considering, we are bound to believe that the mean duration of human life will forever increase, unless its increase be prevented by the physical revolutions of the system ; but we cannot tell what is the bound which the duration of human life can never exceed ; we cannot even tell, whether there be any circumstance in the laws of nature which has determined and laid down its limit.

BUT may not our physical faculties, the force, the sagacity, the acuteness of the senses, be numbered among the qualities, the individual improvement of which it will be practicable to transmit ? An attention to the different breeds of domestic animals must lead us to adopt the affirmative of this question, and a direct observation of the human species itself will be found to strengthen the opinion.

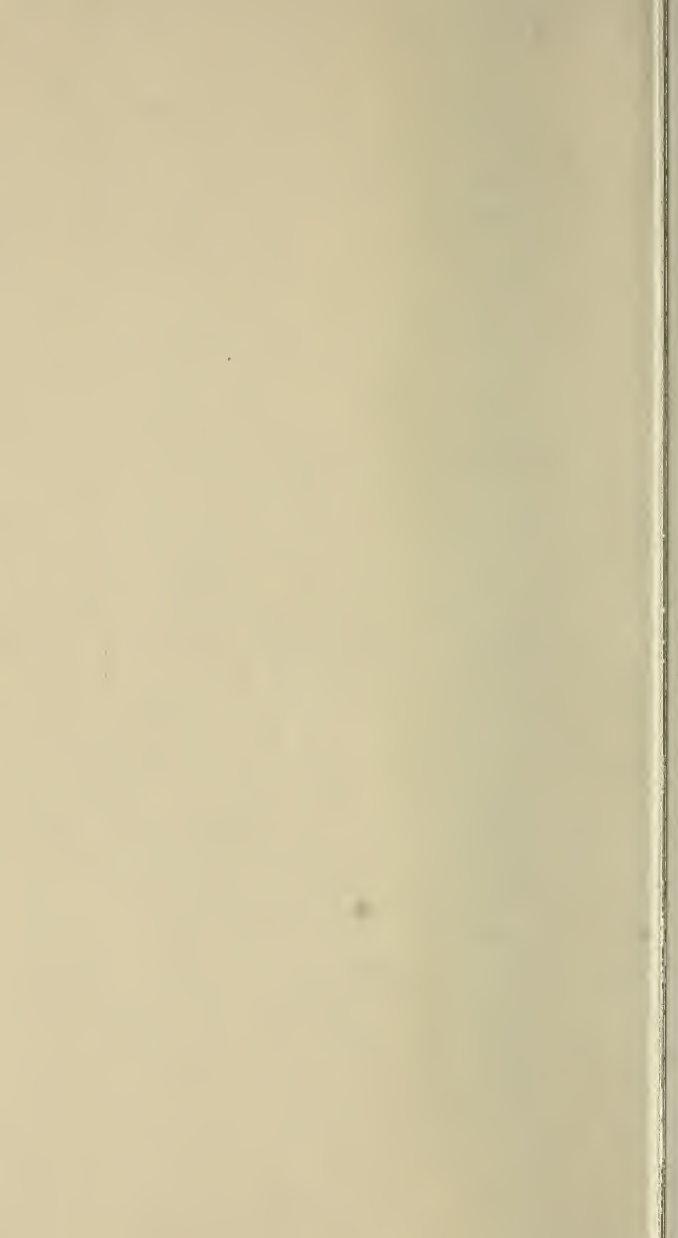
LASTLY, may we not include in the same circle the intellectual and moral faculties ? May not our parents, who transmit to us the advantages or defects of their conformation, and from whom we receive our features and shape, as well as our propensities to certain physical affections, transmit to us also that part of organization upon which intellect, strength of understanding, energy of soul,

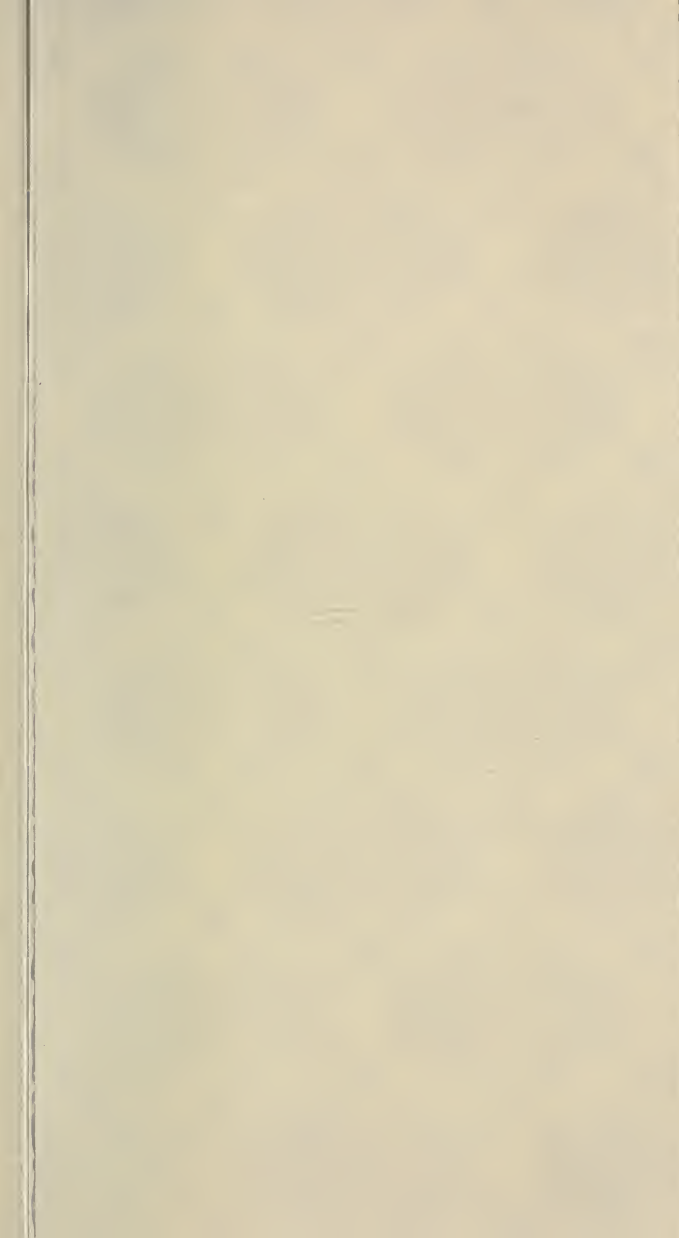
of moral sensibility depend? Is it not probable that education, by improving these qualities, will at the same time have an influence upon, will modify and improve this organization itself? Analogy, an investigation of the human faculties, and even some facts, appear to authorize these conjectures, and thereby to enlarge the boundary of our hopes.

SUCH are the questions with which we shall terminate the last division of our work. And how admirably calculated is this view of the human race, emancipated from its chains, released alike from the dominion of chance, as well as from that of the enemies of its progress, and advancing with a firm and indeviating step in the paths of truth, to console the philosopher lamenting the errors; the flagrant acts of injustice, the crimes with which the earth is still polluted? It is the contemplation of this prospect that rewards him for all his efforts to assist the progress of reason and the establishment of liberty. He dares to regard these efforts as a part of the eternal chain of the destiny of mankind; and in this persuasion he finds the true delight of virtue, the pleasure of having performed a durable service, which no vicissitude will ever destroy in a fatal operation calculated to restore the reign of prejudice and slavery. This sentiment is the asylum into which he retires, and to which the memory of his persecutors cannot follow him: he unites himself in imagination with man restored to his rights, delivered from oppression, and proceeding with rapid strides in the path of happiness; he forgets his own misfortunes while his thoughts are thus employed; he lives no longer to adversity, calumny and malice, but becomes the associate of these wiser and more fortunate beings whose enviable condition he so earnestly contributed to produce.

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THE END.







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